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Fortnightly Review

We, the People

OVER the cocktails and in the hotel lobbies, Clinton M. Hester, CAA Administrator, and Charles P. Graddick, Superintendent of the Air Mail Service in the Post Office Department, were hazed a little following their speeches at the National Air Mail Feeder Conference in Kansas City the other day.

Here and there in both speeches were sentences a bit startling to mid-westerners who feel strongly that the Federal constitution is a document drawn up by the states and that Federal officers should look to the sovereign state for guidance when in doubt about any matter of economic importance to the state. For example, a few heads were cocked when Mr. Graddick said, "there still remains the question of whether the government can and will support feeder lines . . ."

Following that remark we heard one tanned son of Kansas say, "What t'hell's the Federal government got to do with it? My Congressman's in there to see that my state gets what we need."

Some similar remarks were made about Mr. Hester's statement that a CAA survey will "consider the place in the national economy of communities served by air transport in order to provide a basis for deciding whether or not there is justification for assumption by the Federal government of a portion of the cost of airports and air-ports facilities."

All of which indicates that national planning still needs some selling in the sovereign states and that our aviation's hard working friends in the federal departments will do well to mingle frequently

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Feeder Mail Conference Chilly Toward Washington Caution

ARNOLD NAMED TO HEAD AIR CORPS

Successor to Gen. Westover Entered Aviation in 1911; Won Mackay Trophy in 1912 and 1935

Brig. Gen. Henry H. Arnold will become chief of the Army Air Corps, succeeding the late Maj. Gen. Oscar Westover, and will be promoted to the rank of major general, it was announced by the War Department Sept. 30. Col. Walter G. Kilner, now chief of staff of the air force headquarters at Langley Field, Va., will become assistant chief of the corps, with the rank of brigadier general. The new head of the Air Corps has served as assistant chief since January, 1936.

General Arnold, a native of Gladwyne, Pa., graduated from West Point in 1907. He was commissioned in the infantry and served with that branch for nearly seven years. He was on aviation duty in 1911-13 and was again detailed to the aviation section of the Signal Corps in May, 1916. He was one of the Army's earliest trained flyers, and in 1912 won the Mackay medal for a triangular reconnaissance flight, 30 miles to the leg, from College Park, Md., over Washington and Fort Myer. In 1935 he again won this trophy for leading in the previous year a flight of 10 bombers from Washington to Fairbanks, Alaska.

When the U. S. entered the war he

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Directs Air Corps



MAJ. GEN. HENRY H. ARNOLD Assumes command of the U. S. Army Air Corps succeeding the late Gen. Oscar Westover. Since 1936 he had served as Assistant Chief.

CAA to Study 800 U. S. Airports and Files of Other Govt. Bureaus

Informal Meeting Held in Washington Oct. 4 Results in Interchange of Ideas Between Authority and Air Industry for Improving Congressional Report

Formulation of a concrete fact-finding policy to justify recommendations which will be made to Congress for a national airport system, Oct. 4 occupied morning and afternoon sessions of the Civil Aeronautics Authority and about 40 aviation figures, representatives of various government departments and economic and trade organizations. The nation-wide airport survey must be submitted on Capitol Hill before Feb. 1.

A subcommittee of five members will

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Sub Committee Members

The airport subcommittee, announced Oct. 7, comprises the following representatives: O. M. Mosler, vice president, American Airlines (representing the Air Transport Association); Earl D. Mallery, manager, Washington Office, American Municipal Association; John Berry, president, Airport Managers Association; Charles L. Morris, incoming president, National Association of State Aviation Officials; Richard Aldworth, Chairman, New Jersey Aviation Commission; Paul V. Betters, executive director, U. S. Conference of Mayors.

Demand for Air Mail Expansion Not Halted By Dampening Ideas of Hester, Graddick

KANSAS CITY, Mo., Oct. 7—When the sovereign states want air mail expansion it will take more than synchronized Washington speeches to change their minds.

Such was the distinct impression lingering at the three-day National Air Mail Feeder Conference which closed here today following speeches by Charles P. Graddick, Superintendent of the Air Mail Service of the Post Office Department, and Clinton M. Hester, Administrator of the Civil Aeronautics Authority, both of whom urged that the delegates make haste more slowly and conserve their enthusiasm about too rapid a growth of the nation's air transport feeder system.

Both of the popular federal officials delivered addresses before the conference, attended by more than 200 persons which included strong representation from aircraft manufacturers, airlines and civic organizations.

Among the speakers who led in presenting the expansion demands for air mail feeder patrons were Marcellus Murdock, publisher of the *Wichita Eagle* (Kansas), and Wayne W. Parrish, editor of *AMERICAN AVIATION*, of Washington, D. C.

Mr. Graddick said "The Post Office Department is interested in feeder routes. As interested as we may be, however, we must not, in our enthusiasm, overlook either the practical problems or the lessons experience and history have taught us.

"From a practical standpoint, we know that it has been very difficult to secure sufficient appropriations to operate the trunk-line system at the highest state of efficiency.

"Assumed that we could prove reasonable need for many routes, there still remains the question of whether the government can and will support feeder lines adequately until they have developed to the point where they will be self-supporting."

Mr. Murdock expressed the opinion that reasonable appropriations for air mail service development should not be hard to get in this day of vast WPA and PWA pump priming. He also pointed to the unfortunate plight of Britain, for lack of adequate aviation,

during the recent Czechoslovak crisis.

Mr. Hester emphasized that the President has often said that "every part of the American economy depends upon every other part—one cannot succeed when it has speedy means of transportation and another part has not." He said that CAA "will examine the needs and the possible contributions to the national economy of communities not now served by air transport."

"It may well be that some communities could be better served by other means of transportation. For, make no mistake about it, air transportation is not the answer to every transportation need."

"There are enthusiasts who think it is. But you, as business men, know that mis-directed enthusiasm wastes a commodity more valuable than money. I believe in the conservation of enthusiasm."

Mr. Parrish pointed out that "the future course of the development of air transportation rests in large measure on public demand. And when a movement begins out here for feeder air mail service, it means there is a genuine demand for this service. Air mail expansion cannot be launched in Washington; Washington is merely responsive to demands from the country at large. By Washington I mean Congress in particular, because it is Congress that holds the purse strings."

In the final analysis, he said, "it is the public that deserves expansion of air mail service. This conference is a very evident demonstration of the desire for more mail service and I don't think it is an inept illustration to say that the expansion of air mail should be similar to opening up a public water supply to a new subdivision of a community. No one expects a water supply in a new subdivision to pay for itself immediately, and yet no one denies that the extension of water mains is a vital need and a means to community betterment. The extension of a public utility supplying water will lead to more homes being built and eventually the new water mains more than pay for themselves."

"Following this same line of reasoning, it could not be expected that a feeder air mail line would pay for itself directly in monetary terms in the first week or the first year, but yet the expansion of the air mail is a vital economic service of benefit to the entire nation, profitable to its individual users from the very beginning. Why shouldn't feeder and local air mail service be subsidized until this inevitable profitless period draws to a close? What more effective collateral could the government or its citizens ask than a well organized, efficient and complete air mail service?"

The conference was arranged and managed by Clarence R. Mooney, secretary of the aviation committee of the Kansas City Chamber of Commerce. Sessions were held in the Hotel Muehlebach. Active leaders included Moss Patterson, president of the Southwest Aviation Conference, sponsor of the conference, and John N. McLucas, chairman of the local convention committee.

ARNOLD

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was on duty in the Panama Canal Zone, organizing the air service. Ordered to Washington in May, 1917, he served with the air division of the Signal Corps and as assistant director of military aeronautics until 1919. He was then stationed on the Pacific Coast for five years, during which time he commanded Rockwell and

Crissy Field and was air officer for the 9th Corps Area at San Francisco.

Other assignments: Duty in the office of the chief of Air Corps, 1925-26; command of Marshall Field, Ft. Riley, Kan., 1926-28; command of air depot at Fairfield, O., 1929-31; and command of March Field, Cal., and later of the 1st Wing, G. H. Q. Air Force, 1931-35.

Always a stout defender of the worth of aerial defense, he was reprimanded in 1926 for what was considered an excess of zeal for air armament. He was with the A.E.F. in France in the closing months of the war on inspection duty. His technical studies have included photography, special means for topographical observations, and aerial mass tactics, as well as engineering problems of flying. He was born in 1886.

Other Changes

Other Air Corps promotions and staff changes announced by the War Department involved:

Col. Walter H. Frank (with temporary rank of brigadier general) to command the 18th Wing, G.H.Q. Air Force, Hawaii, effective Oct. 1, to succeed Brig. Gen. Barton K. Yount, who recently commanded the 18th Wing and was relieved because of expiration of tour of foreign service.

Col. Herbert A. Dargue, (temporary rank of Brigadier General) now assistant commandant, air corps Tactical School, Maxwell Field, Ala., to command the 19th Wing, Panama Canal Zone, effective Oct. 13, succeeding Brig. Gen. George H. Brett, who recently commanded the 19th Wing and was relieved because of expiration of tour of foreign service.

Westover Services

Funeral services for Maj. Gen. Oscar Westover were held at Arlington National Cemetery Sept. 27, a few hours after his companion in the crash was buried nearby. Technical Sergeant Samuel Hymes. Both were killed Sept. 21 when their Army plane went into a double stall near Burbank, Cal. Lieut. Col. Andrew W. Smith, Medical Corps representative from March Field, told a coroner's jury Sept. 26 that the engine probably failed at 400 to 500-ft. and that contributing factors were treacherous air currents. The jury found both deaths were accidental.

Gen. Arnold Says U. S. 'Had' Major Air Lead

Army authorities in Washington are concerned about America's place in the world's high speed aircraft picture. Maj. Gen. Henry H. Arnold, the Army Air Corps' new chief, admitted that American "superiority" was threatened, in a letter addressed to Corps officers and men Oct. 7.

"Until quite recently we had marked superiority in airplanes engines and accessories. That superiority is now definitely challenged by recent developments abroad," he wrote. "This means that our experimental development programs must be speeded up."

Germany's new single seater fighter, Messerschmitt 109, is cited privately in Washington as one of the world's fastest aircraft.

The new Air Corps chief told interviewers in Washington Oct. 4 that faster planes, not necessarily more craft, are the greatest need of the Corps at this time. "Bombing planes with speeds well in excess of 300-mph. are just around the corner," he said. Other fighting craft will be still faster. He described the 2,320 planes which the Air Corps will have in 1940 as "a very good figure, as things stand now."

C. A. A. Appoints Two New Division Chiefs

James C. Sinnigen, formerly with the Railroad Retirement Board, has been appointed chief of the planning and procedure division of the C.A.A. secretary's office, and Robert Reining, former chief of the Bureau of Air Commerce registration section, is heading the records division, according to Paul J. Frizzell, coordinator and secretary of the C.A.A.

Because the planning and procedures division's job will be essentially one of organization, Sinnigen was thought to be the best man available for the position, due to his extensive government experience in that type of work. In 1933, he was assistant director of personnel for the NRA, and in 1936 helped liquidate that organization from his position as special assistant in the office of the secretary of commerce. Following this, he was with the Social Security Board as chief industrial engineer and acting chief of the division of coordination and review. From February to June, 1938, he conducted a survey of the Railroad Retirement Board's administrative set-up.

Sinnigen was born in Brooklyn, N. Y., in July 1894, and graduated from Columbia University. He served in the U. S. Army from 1917 to 1919, being discharged with the rank of second lieutenant.

Reining, who was born in Greenville, N. J., in October, 1894, graduated from the naval aviation ground school at M. I. T. in 1918, and completed elementary flight training at Southampton. He served as an auditor for the Bureau of Internal Revenue, and joined the Bureau of Air Commerce in 1929. After working as a junior aeronautical inspector, he was appointed assistant chief and later chief of the registration section.

Frank Miller Appointed

Frank Miller, for some years one of the editors of *Western Flying*, has been appointed to the education section of the Air Safety Board of the CAA. Mr. Miller has flown many transcontinental trips, some of them in the interest of the west coast magazine, and is well known in the industry.

Corps May Ground Leaders

The War Department is expected to issue new regulations shortly which will forbid high officers from piloting airplanes, *The New York Herald Tribune* asserted Oct. 1. It is said the plan has been under consideration by Harry Woodring, Secretary of War; Louis Johnson, Assistant Secretary, and Gen. Malin Craig, Chief of Staff. The order probably will include group and wing commanders, the chief and assistant chief of the Air Corps, and other top rank men. Virtually all officers in these groups are now in their late forties and early fifties, when medical charts prove slower physical reactions become apparent. Pay would not be deducted.

Transport Downed

Billings, Mont., Oct. 5—A Northwest Airlines transport taking off from municipal airport here last night for Seattle bounded for about 500-ft. and skidded to a stop on its fuselage. Pilot Bert Ritchie, co-pilot Robert Brush, and the one passenger were uninjured. Inspector A. T. Petersen of the CAA, expressed the informal opinion that the left landing gear had snapped as the plane was about to leave the runway.



COOPERATION

During the recent New England flood disaster when ground transportation was paralyzed the major airlines joined forces to provide passenger, mail and express service between New York and Boston. Thousands of passengers, tons of mail and express were flown.

Highest praise is due American Airlines for placing every available plane in service and maintaining a day and night emergency schedule between Newark and Boston.

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TWA, together with United Air Lines and Eastern Air Lines, joined forces with American in providing this service, and is proud to have had a part in demonstrating the efficiency and dependability of air transportation during this disaster.

TRANSCONTINENTAL & WESTERN AIR, INC.



Hester Heads NASAO Convention Program

Omaha, Oct. 13—Clinton M. Hester, CAA administrator, heads the list of speakers at the 8th annual convention of the National Association of State Aviation Officials, opening here today. The following program has been released by Col. Floyd Evans, director of aeronautics for Michigan and retiring president of the association.

Oct. 13: Registration, committee meetings, and Aeronautical Law Review of 1938, by George Logan, legal counsel for the NASAO.

Speakers on Oct. 14 include: Gill Robb Wilson, director of aviation for New Jersey, who will be discussion leader on the topic of the Civil Aeronautics act; Mr. Hester, who will discuss the act; Corrington Gill, assistant administrator of W.P.A.; William Enyart, NAA secretary; Wayne W. Parrish, editor of AMERICAN AVIATION; Al Near, manager of Louisville airport, discussion leader on topic of airports; Representative John Dingell, of Michigan; A. B. McMullen, chief of the airport and air marking section, CAA.

Oct. 15: Willard Fletcher, director of airports, state of Rhode Island, discussion leader on Uniform Aviation Liability Act; Gen. William A. Schnader, chairman of the committee on uniform aeronautical code, National Conference of Commissioners on Uniform State Laws; Mrs. Mabel Walker Willebrandt, chairman, aeronautical law committee, American Bar Association; George Logan, chairman of NASAO uniform aviation law study committee, a report on the committee's work; Sheldon B. Steers, assistant director of the Michigan State Department of Aeronautics, discussion leader on the topic, "Private Flying and Fixed Base Operation;" Grove Webster, chief of the Private Flyers Section of the CAA; O. J. Whitney, president of O. J. Whitney, Inc., New York; Robert Aldrich, president of New York State Aviation Association.

At the closing banquet speakers will be Fred Fagg, Jr., former director of the Bureau of Air Commerce and now dean of the Northwestern University school of commerce, and Col. Edgar Gorrell, president of the Air Transport Association. Raymond Staub will be toastmaster and motion pictures will be shown by John Victory, of the National Advisory Committee on Aeronautics.

CAA Calls Traffic Control Conference

The airways traffic control division of the CAA will hold conferences at the LaSalle Hotel, Chicago, from Oct. 17 to Oct. 22, with managers of the eight airways traffic control stations now in operation and the proposed managers of the five new stations to be opened within the next few months. Recommendations and comments will be made with the view of revising various sections of the civil air regulations and manual of operations, and drawing up matters of policy.

Washington personnel attending will include Earl F. Ward, chief of the airways operations division; Eugene Sibley, chief of the communications section; J. H. Nicholson, assistant chief of the communications section; Glen A. Gilbert, chief of the airway traffic control section; John L. Huber, assistant chief, and Fred L. Smith, chief, of the airport traffic control section.

Records

Toni Kahlbacher and Josef Fuehringer of Vienna on Sept. 10 claimed the world endurance glider record for two-place sailplanes by remaining aloft 40 hrs. 51 min.

Smith Completes 10th Year with American



C. R. Smith, president of American Airlines, marked the 10th year of his connection with that line on Sept. 30.

A native of Minerva, Texas, Mr. Smith entered aviation as treasurer of the old Texas Air Transport Company operating between Dallas and Brownsville on Sept. 30, 1928. When Southern Air Transport was organized as a holding unit for Texas Air and affiliated companies, he became the treasurer of the new company. He later became vice-president and continued in this capacity when Aviation Corp. bought a large share of stock in Southern Air Transport.

American Airways came into existence in 1930, organized by Aviation Corp. as a means of unifying its several operating companies. In 1931 Mr. Smith became vice-president of the new company and was placed in charge of the southern division. Following cancellation in 1934, American Airlines, Inc., came in existence and several months later he was elected president. Mr. Smith supervised the first through sleeper service between Dallas and Los Angeles, has re-equipped his line with latest ships, and by his direction American climbed last year to first place in number of passengers carried in the U. S.

Air Express Gains

Railway Express Agency reports that in August air express shipments numbered 58,308, an increase of 10.6% over August, 1937. Gross revenue for air express for August was the highest for any month on record except September and October, 1937. Revenue increased 9.05% over the corresponding month last year. Average weight per shipment was 6.8-lbs., highest for any month since last September, and the average revenue per shipment was the highest for any month since last October.

Airline Applications Deadline is Oct. 21

The CAA has announced Oct. 21 is the deadline for receiving under the "grandfather clause" all airline applications for certificates of convenience and necessity. CAA offices in the Department of Commerce Building in Washington will remain open beyond regular hours and arrangements will be made to receive petitions up to midnight.

AIR LINE PILOTS MEET 4th Convention to Convene in Chicago Oct. 17

Chicago, Oct. 5—The fourth convention of the Air Line Pilots Association will be held here starting Oct. 17 and continuing until all business is disposed of. David L. Behncke, president, will preside.

First convention was held Oct. 17-19 in 1932, the second in 1934, and the third in 1936. Biennial meetings have been held because of such activities as labor code hearings, legislation and the like. Association officers are elected for two years, present terms expiring the end of this year.

Ortman Bails When Miller Ship Crumples

East Hartford, Conn., Oct. 3—Earl Ortman today bailed out of the high speed military pursuit model MAC-1 of Miller Aircraft Co., while in a power dive, after one wing was ripped off. The plane, Frank Hawks' "Time Flies" before it was rebuilt, crashed into a barn and burned. It was piloted by Leigh Wade in the recent Thompson trophy race, coming in 4th for an average of 249.842-mph. Ortman had planned a transcontinental dash from New York to San Diego in the Miller ship about Oct. 10.

(Recently published reports that Ortman had been pledged financial backing by Cleveland industrialists for manufacturing high speed ships are premature, AMERICAN AVIATION was told by Cleveland aviation officials. The matter was said to be still "in the dream stage.")

Aviation Calendar

- Oct. 14-16—Second annual International Aerobatic Competition and St. Louis Air Races, St. Louis.
- Oct. 17-22—Traffic Control Conference, Hotel LaSalle, Chicago.
- Oct. 17—Opening of 4th convention of Air Line Pilots Association, International, Chicago.
- Oct. 28-29—National Rotating Wing Aircraft Meeting, sponsored by Philadelphia Chapter, Institute of Aeronautical Sciences, at Franklin Institute, Philadelphia.
- Nov. 18-Dec. 4—16th International Air Show, Paris, France.
- January—Meeting of the Air Transport Association Engineering and Maintenance Committee, city and date tentative.
- January—1939 Convention of National Aeronautic Association, St. Louis.
- Jan. 6—Midyear Meeting, Florida Aviation, Miami, Fla.
- Jan. 6-8—11th Annual All-American Air Maneuvers, Miami, Fla.

35th Wright Anniversary Program

Dayton, O., Oct. 10—The leading aviation figures of the world will be invited here Dec. 17 to attend ceremonies marking the 35th anniversary of the first flight of Orville and Wilbur Wright, the aeronautical committee of the Chamber of Commerce has decided. The Association of Men With Wings is expected to co-operate. A program is being formulated by a committee headed by Howard Egbert, and Orville Wright will be invited here as honored guest. No public observance of the anniversary has been made here since the 25th milestone in 1928, local leaders said. At that time, noted leaders from many foreign countries, including Gen. Italo Balbo, of Italy, came to Dayton to pay tribute to the pioneers of flight. The frail craft, now in Kensington Museum, London, flew first on Dec. 17, 1903, over the sand dunes near Kitty Hawk, N. C.

NOBLE LAUDS U. S. AIRLINE SAFETY

Only Half of 1% of Population Is Riding Transport Lines; Private Flying Less Secure

Edward G. Noble, chairman of the Civil Aeronautics Authority, in the first formal address since his appointment, told the Junior Board of Commerce in Washington, D. C. Oct. 6 that it is 300% safer to fly this year than in 1930. "The airline ratio is one fatal accident to each 12,000,000 miles of flying," he asserted. "At that rate, you can fly around the world 480 times before you need be afraid of flying into it. That figure is absolutely correct and it is something for timid souls to think about."

Speaking at a luncheon marking National Air Travel Week, the chairman declared: "We have the greatest airline system in the world in this country. We gave birth to the airplane and we have produced great aeronautical genius and we like to boast of it. And yet in spite of that, not more than 2% of our total population makes any use of it. . . . The truth is, not even that small number flies. The airlines check in a million passengers a year but they know that the same people are flying all the time and they actually get no more than a quarter of a million individuals—so actually only one-half of 1% of our population ride in airplanes."

The reason for this condition, he said, is probably a combination of two, best expressed as "fear" and "fare." "We must find a point where the combination can be broken," he added. "I think we have a selling job to do."

Mr. Noble said ships have sailed the seas for thousands of years and there are still accidents. Railroads on a fixed road bed still have collisions. "I do not see how anyone can expect flying ever to be 100% safe," he added.

Although an airline plane is inspected thoroughly after even a 15 minute flight, the Chairman said "when we come to the private flyer it's a different story. It's a little harder to tell a man who owns his own airplane how he should fly it. But the private flyer should be as fully responsible to his community as the airline operator."

Discussing the safety record of private flying, the speaker said there were too many accidents, particularly among student flyers. "Our private flying division intends to find out why. It may be that training methods are at fault or that airplanes built for beginners are not all they should be," he said.

Contrasting the attention foreign nations are giving to flying instruction for young people, the chairman pointed out that whereas our government sponsors the theater and various art projects, outside of a few vocational ground schools in the C.C.C., not a penny of government money goes to flying instruction outside of the military services.

Airline Safety Up 246%

Lew R. Palmer, secretary of the National Safety Council's advisory committee for aeronautics, during National Air Travel Week reported: "An increase of 246% in safety factor has been recorded by domestic airlines of the U. S. in the past eight years." This is based on passenger-miles flown per passenger fatality for the year 1930 and comparison with the 18 months ended July 1, 1938. Number of fatal plane accidents, on basis of plane miles flown, has been cut 93% during the period 1928-1937.

Pan American and American Export Officials Sign Agreement to Avoid 'Wasteful Competition'

Officials of the United States' two contenders for the trans-Atlantic air traffic, Pan American Airways and American Export Airlines, have signed a 15 year agreement pledging cooperation and assigning the geographical areas each will serve. Both will operate from the United States to France and Germany. Both will seek to operate an equal number of trans-Atlantic schedules each week. In some cases use of ground facilities, ground radio, and meteorological service is shared.

The paper was signed in New York September 22, and will be submitted to the Civil Aeronautics Authority for the approval which is necessary before the document is effective.

Traffic organizations of both corporations, with representatives all over the world, will sell transportation, each corporation for the other, on a commission basis. Juan T. Trippe, president of Pan American Airways Co., and Robert Thach, vice-president of Pan American Airways Corp., signed for Pan American. W. H. Coverdale, as president of both American Export Lines, Inc., and American Export Airlines, Inc., signed for Export. Text of the agreement was received by the Securities & Exchange Commission Sept. 28 as part of a registration statement filed by American Export.

Other Arrangements Possible

The agreement does not affect activities of third persons, leaving the way open for other operating arrangements by either corporation. Reasons given for such cooperation are (1) to "promote the safety, economy, and efficiency of the trans-Atlantic air transport services to be conducted by the parties," (2) to "avoid destructive and wasteful competition between them," (3) for the public interest. "This agreement shall not be deemed as intended to create a partnership or a joint venture by the parties," it is stated in Article 1.

American Export agrees to engage in no commercial service in or to the following countries: Great Britain, Ireland, Finland, Estonia, Bermuda, Latvia, Holland, Lithuania, Denmark and Iceland, Czechoslovakia, Norway, and Sweden.

Pan American during the term of the agreement will not offer commercial service in or to Italy, Greece, Yugoslavia, Islands in the Mediterranean, Roumania, Western Asia to the Persian Gulf, Albania, Bulgaria, North Africa (including Tangier, Spanish Morocco, French Morocco, Algeria, Tunisia, Libya, Egypt, the Sudan and Abyssinia), and Turkey.

Pan American, however, is allowed to establish round the world service, stopping at Export ports, but under the following conditions: (1) Such trips are not to exceed one trip a month in each direction; (2) Any craft on such trips carrying passengers between the U. S. and France will be considered as making a regular trans-Atlantic crossing; (3) Pan American will pay to Export 40% of the gross revenues collected by Pan American from all traffic other than mail carried on such a round the world service between the

Speeds Ocean Crews

More than a dozen recent graduates of American universities, recently added to Pan American Airways' Atlantic division staff, will be employed in the trans-Atlantic service exclusively, it was revealed in Boston recently. Included also are airport managers, engineers, mechanics and traffic men. The mechanical aides are scrutinizing all blueprint details of the new Boeing clippers, many of the courses being illustrated with lantern slides. "When the first 82,000-lb. airplane settles down on the Baltimore harbor this fall, most of the staff will know the location of every nut and bolt in the flying boat," a Baltimore aviation expert commented. There have been 40 two-hour courses this summer on the engines alone.

places listed here: (a) The United States and any place listed above as restricted to American Export (b) Portugal, Spain, France, Belgium, Switzerland, Poland, and any stop reserved to Export; (c) any two places restricted to Export (d) any two of the following: Portugal, France and Spain (e) the U. S. and France. A 30% payment is stipulated to be paid on traffic originating at or destined to points in the eastern or western Mediterranean which are served by an Export trans-Atlantic service once a week or oftener.

Equal Service

Each corporation will seek from France, Germany and the U. S. permission to operate the same number of round trips each week, with not less than one round trip per week for each to or through France. Exceptions to this, however, are round the world services of Pan American, a service operating over France but not landing, and a service operated from or to France but not carrying any traffic from, to, or through the U. S. Special stipulations are made also as to local traffic.

Export agrees that any trans-Atlantic service it may operate to or from Russia will be by a route or routes south of Poland, while Pan American will fly such a schedule north of Poland.

Export agrees to restrict all trans-Atlantic activities via Canada or Newfoundland to non-commercial flying. Pan American agrees to make no objection to granting to Export test permits from these countries.

Pan American will advise Portugal it has no objection to that government's granting Export all rights (Portugal to include the Azores).

Both lines will advise any French air line with which either has an arrangement that it would be agreeable to the making by such French air line of any non-exclusive arrangement with the other party to this agreement.

Use Same Facilities

Export will be entitled to rent Pan American facilities in Portugal, the rent to be based on cost, maintenance, rate of obsolescence, etc. Each will make available to the other all ground facilities, ground radio and meteorological services used by either for trans-Atlantic service, where the right to make such facilities available is possible, the rentals to be based on upkeep obsolescence, a reasonable return on the investment, etc.

If Export is authorized by Portugal

to land in that country, the companies will exchange detailed statements of the amounts paid or payable by each up to the date of this agreement in the development of trans-Atlantic service via Portugal. Either party may object to the statement of the other within 30 days, disputes to be settled by arbitration.

"The excess of Pan American's development expenses over Export's development expenses shall then be computed. There shall likewise be computed the annual sum required to be paid (the first such payment to be made one year after the commencement of Export's trans-Atlantic service) to amortize such excess over a period of 15 years, with interest on the unamortized portion computed from the commencement of Export's trans-Atlantic service at a rate to be agreed upon with due regard to all factors involved, including, among others those present at the time of the investment, or, in the event of inability of the parties to agree, to be fixed by arbitration. . . . Export shall pay to Pan American at the end of each year from the commencement of Export's trans-Atlantic service the sum obtained by multiplying the annual sum so required by a fraction, of which the numerator shall be the number of round trips made by Export during each year between the United States and Europe in the course of which a landing was made in Portugal, and the denominator shall be the number of such round trips made during the year by Pan American and Export; provided, however, that in no event shall such fraction be greater than one half."

World Wide Selling

Wherever possible the traffic organization of each corporation shall be extended to the other "for the purpose of selling transportation and performing other services," for 10% commission upon tickets sold, except where otherwise agreed upon.

The term of the contract is 15 years, but after expiration of five years either party may at any time serve notice upon the other that it desires to terminate the agreement on a date one year from such notice.

If Pan American or Export shall not have started scheduled common carrier trans-Atlantic service within four years after September 22, 1938, or, having inaugurated it, shall discontinue it for six consecutive months, the other party may serve notice at any time thereafter, provided that at the time of the service of such notice such trans-Atlantic service shall not have been inaugurated or resumed. If either should decide after four years not to inaugurate scheduled common carrier trans-Atlantic service, or should decide, after it has been started, to abandon it, it shall promptly notify the other party of such decision, whereupon such party may, at its option, serve notice that the agreement shall be terminated on a date specified.

The agreement is to go into effect if the CAA issues certificates of convenience and necessity to both lines for service to France and through France to Germany at least once weekly for each, provided, however, "that if in the sequence of events such a certificate shall issue to Pan American before the issuance of such certificate to Export, the issuance of such a certificate to Export shall not be a condition precedent to this agreement becoming effective."

AM. EXPORT FILES SEC STATEMENT

Parent Corporation to Finance Its First Flying Boat and Spend Rest of Income on Steamships

American Export Lines, Inc., has filed with the Securities & Exchange Commission a registration statement covering intended issue of 99,000 shares of capital stock, of \$1 par value per share, with a proposed maximum offering price of \$12.50. Of the net proceeds, approximately \$250,000 will be applied to the subscription by the company to additional shares of capital stock of American Export Airlines, of which \$250,000 an amount of \$140,000 will be expended in payment of the balance of the purchase price of the first Consolidated flying boat ordered Sept. 7. The balance (\$110,000) will pay expenses of experimental flights. The first flying boat was bought for \$150,000, of which \$10,000 has been paid. The purchase agreement calls for delivery four months after receipt of the first payment, and an option within 60 days from Sept. 7 for purchase of two additional planes of the same type at \$150,000, each to be delivered within three months after exercise of the option but not prior to delivery on the original plane. Each craft will have two Pratt & Whitney Twin Row Wasps and Hamilton Standard Constant Speed propellers.

The balance of net proceeds of this stock issue (about \$750,000) will be applied to the purchase price of one or more of four freight vessels now under construction by Bethlehem Shipbuilding Corp., Ltd.

Total current assets of American Export Lines, Inc., as of June 30, 1938, amounted to \$1,922,451.73. Operating revenues for the year ending June 30 were: freight, \$3,615,928.37; passenger, \$457,993.39; mail, \$30,305.26. Total operating income was \$4,721,878.40 and net income was \$260,043.58. "The U. S. Maritime Commission has no relationship to the company," the firm's statement to the SEC said. "The company operates the only regular eastbound and westbound service under the American flag between the United States North Atlantic ports and the Mediterranean and Black Sea Ports."

On Sept. 20, 1938, Lehman Brothers held 192,840 of the 401,000 shares then outstanding. W. H. Coverdale, president, owned beneficially 79,000 shares, or 19.70%. Two American Export directors, Thomas Hitchcock, Jr., and Joseph Thomas, are partners in the firm of Lehman Brothers, and Harold J. Szold, another director, is an employee of Lehman Brothers. The underwriter of the new issue will be announced at a later date.

Get Boeings Next Spring

Transcontinental and Western Air, Inc., will not receive the first of its six new Boeing 307 four-engined transports until after Feb. 1. Originally the ships were to be placed in operation this fall, but changes in design delayed production. Pan American Airways will receive the first three 307's with TWA's order following.

Kropf Ordered Home

New York, Sept. 28—Emil Kropf, German stunt flyer who appeared at the Cleveland Air Races in his Fiesler-Storch plane, has been ordered to leave for Germany by Oct. 1. He is an officer of the German air force. Paul Koesta, who was demonstrating a Messerschmitt-Taifun in this country, left about a week ago.

Try Export-Italian Weather Plan



First demonstration of American Export-Italian Line weather forecasting service was given last week in the office of W. H. Coverdale, president of American Export Airlines, Inc. Left to right are James M. Eaton, vice-president of American Export Airlines, Inc.; O. P. Harwood, senior inspector of the CAA; J. A. Thomas, of Lehman Bros., bankers; Mr. Coverdale; Dr. James H. Kimball, senior meteorologist of the U. S. Weather Bureau, who plotted the map, from steamship radio reports; C. Pezzani, general manager in charge of operations of Ala Littoria, Italian air line; Devon Francis, aviation editor of the Associated Press; Comdr. A. Ruspini, of the Italian government; Roland Palmedo, of Lehman Bros., bankers.

American Export Airlines Making Operating Agreement with Ala Littoria

American Export Airlines, subsidiary of American Export Steamship Lines, has concluded "very close working arrangements" with Ala Littoria, official Italian airlines, which includes coordination of Italian steamship operations and aircraft operations, according to W. H. Coverdale, president of the company. The Italian company has served notice it will be ready to start service next spring.

At the same time it was announced that the American company is applying to the Civil Aeronautics Authority for a certificate of public convenience and necessity for operation of an airline service between this country and Mediterranean ports. Purchase of a long-range Consolidated flying boat for survey flights was announced recently.

Ala Littoria operates from Italian cities to France, Germany, Portugal, Spain, Egypt, Czechoslovakia, Rumania, Yugoslavia, Greece and into Africa. Whether plans contemplate a reciprocal service between this country and Europe with the Italian line is not definitely known.

American Export has received permits for experimental flights from the United States, France, Germany, Italy and Greece, and negotiations are under way with Egypt and Portugal. The steamship parent company operates into 70 cities in 20 countries in the Mediterranean.

Navy Seeks Base Site

Galveston, Tex., Sept. 28—Members of a Naval Board yesterday inspected possible sites near here for an air base to be established somewhere along the Texas coast. The group, headed by Rear Admiral Arthur J. Hepburn, included Rear Admiral E. J. Marquart, Capt. A. J. Bristol, Capt. Ralph Whitman, Capt. J. S. Woods, and Comdr. W. E. Hilbert, recorder.

Worry, Worry

Newark, N. J., Oct. 1—The Non-Sectarian Anti-Nazi League of New Jersey is excited about the presence at Newark airport of two German aircraft which came to this country to appear on the National Air Races program. Michael G. Alenick, league president, today asked Mayor Ellenstein to investigate, and hinted at "ulterior designs" and "un-American activities."

WASHINGTON PORT LOCATION SETTLED

National Air Terminal to Rise at Gravelly Point, President and CAA Decide

President Roosevelt on Sept. 27 disclosed selection of a 750-acre site for the new Washington National Airport, and the next morning the Civil Aeronautics Authority formally released an immediate construction program which is expected to end 11 years of quibbling and indecision by Congress. The new tract is situated at Gravelly Point, one mile down the Potomac River from the present Washington-Hoover Airport, and directly across the river from Bolling Field. It is only 3½ miles or 10 minutes' drive from downtown Washington.

Planes will be using the field a year after construction starts, and completion is assured by the winter of 1940. Of the total acreage, 500 acres will be "made" land. Levees totalling 6,000-ft. have already been constructed along the Washington channel side of the proposed airport, and behind them lies between 30 and 40 acres of ground.

An official statement by the Authority said it will seek to make the terminal "one of the aviation show places of the country." Unlike the present airport, the finished surface of Washington National will be above river flood stage, and will be usable 85% of the time. When river fogs prevail, another supplemental field, yet to be selected, will be used. This auxiliary airport to be considered shortly will be an all-weather site sufficiently distant from the city to permit long unobstructed instrument approaches through low-hanging clouds, and even blind landings, it was said.

Gravelly Point will provide four runways of at least 5,000-ft., with unobstructed approaches in all eight directions at flight angles as flat as 1-to-40. A seaplane base is also considered. Initial development will call for four paved runways 150-200-ft. wide and at least 5,000-ft. long, terminal building and at least one large hangar with auxiliary service buildings.

The undertaking will be a joint project of the PWA, WPA, Army Engineer Corps and the CAA. A Washington National Airport Committee has been formed, consisting of the administrator of the Authority, Clinton M. Hester, Robert H. Hinckley, of the CAA, and Col. Sumpter Smith, chairman of the Air Safety Board. Actual supervision of preparation of plans and construction will be undertaken by an engineering commission comprising Col. F. C. Harrington, chief engineer of the WPA, and also representing the Corps of Engineers; Fred Schnepke, representing Secretary Harold Ickes, PWA administrator, and Col. Smith, of the Authority. A staff of engineers engaged for the last year on developing New York's North Beach municipal airport probably will be made available by the WPA.

The Mount Vernon Memorial Highway will be moved several hundred feet back from the airport. A central control tower at Gravelly Point will also regulate traffic at Bolling Field. The new Bureau of Public Roads Laboratory nearby, the only obstacle in the vicinity, is expected to be the target of the Air Line Pilots Association, which will seek its removal.

President Roosevelt's statement that "human lives were at stake" was taken in some quarters to indicate that increased vigilance will be enforced this winter at Washington-Hoover Airport by airline and safety authorities.

Leaves From An Old Log

Aviation Poems

By Gill Robb Wilson

***** Published

Sept. 20 in a de-luxe first edition, numbered, and autographed by the author—and nearly 500 copies sold by subscription the first ten days.

***** "Jimmie" Doolittle, in a foreword as "co-pilot," says: "These poems have the lift of wings and the rhythm of propellers. Every old time pilot will recognize them as his own."

***** "Casey" Jones, in a brief biographical sketch of the author, adds: "These songs are their story sung by one of their own fraternity."

***** Capt. Wilson dedicates the volume to his brother, Joseph Volney Wilson, of the Lafayette Flying Corps and U. S. Army Air Service, who was killed in action in the World War.

***** The book captures in simple rhyme the story of air battles, air races, air travel, all the colorful phases of aviation history—not only memorializing the leaders, but paying tribute as well to pilots, stewardesses, mechanics, test flyers, instruments, the radio beam, the weather, and all the rest.

***** The first time aviation people have had a collection of poems which tells the things they do and the way they feel. YOU must not miss the chance to get your copy of the first edition. Don't wait to write for it until all are sold. The book, incidentally, would make the best possible sort of gift for your friends in aviation.

AMERICAN AVIATION

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Export and Littoria Test Weather System

New York, Oct. 4—First public cooperative move by American Export Airlines, Inc., and Italian interests (including the Italian Line of steamships and Ala Littoria, air transport company) was the demonstration in American Export offices here today of compilation of radioed weather data from 14 ships at sea. Nine of the vessels were operated by American Export and five were Italian Line ships. With resulting information, Dr. James H. Kimball, senior meteorologist of the U. S. Weather Bureau, prepared a complete map for flying boats over the U. S.-Mediterranean route.

Russians Lambast Lindy

Eleven leading Russian aviators on Oct. 10 made a scathing attack in the official newspaper *Pravda* on Col. Charles Lindbergh, who was entertained in Russia recently and shown various Soviet aviation enterprises. The officers asserted that Lindbergh had ridiculed the Russian air force while he attended a luncheon at the home of Lady Astor in London. Lady Astor blamed circulation of the tale on the London *Daily Worker*. "There is no truth in it," she said. Lindbergh refused to comment upon his arrival in Berlin Oct. 11, with Mrs. Lindbergh.

Fleet Urges \$20,000,000

Grant for Experimentation

San Diego, Cal., Sept. 22—At least \$20,000,000 should be provided for experimentation on Army and Navy aircraft, Maj. Reuben H. Fleet, president of Consolidated Aircraft Corp., told members of a congressional subcommittee inspecting local Naval establishments. Major Fleet pointed out that Consair's four-motored experimental bomber, which just finished test flights for the Navy, has cost \$1,000,000 alone. For the current fiscal year \$2,803,500 is set aside for Navy development of secret experimental planes, it was said here.

To Get Control Rating

Fort Worth, Sept. 29—Municipal Airport will be ranked as a controlled airport by the CAA shortly, W. G. Fuller, manager, announces.

Airlines Carry 10,162 Passengers in 9 Days Between New York - Boston

Hurricane Blocks All Other Transportation Channels Linking New England With Rest of Nation; Four Lines Maintain Unprecedented Shuttle Service

Aviation came through in emergency duty again following the hurricane which struck New England September 21 and put all other transportation media out of service. Planes were used for rescue, supply, and observation work by the Coast Guard, National Guard, Army Air Corps, the airlines, and unnumbered private and commercial aircraft.

Most remarkable development was the sudden demand for air transportation between New York and Boston and the excellent cooperative service of four airlines to accommodate it. American, holder of exclusive route privileges, was aided by TWA, United, and Eastern. Some stops were made at Bridgeport and Providence.

Reports to the CAA showed 67 round trip flights to Boston from Newark were accomplished in the 24 hours after the storm. Six CAA inspectors, who were to confer with New York City authorities on North Beach Airport plans, were ordered to Newark at once to check safety requirements in the emergency. A close watch was kept on equipment.

1,000 Passengers a Day

In the seven days after the storm American alone carried 7,000 passengers between Newark and Boston; 86,000-lbs. of express, 17,000-lbs. of air mail, and 200,030-lbs. of railway mail.

In the nine day period from the day after the storm through September 30, 10,162 passengers were flown between Boston and Newark, a world's air record for air traffic between two cities. Between 60% and 70% of the passengers were making their first flights. American Airlines announced that it operated 582 schedules, and that other lines made 112 flights in the period. More than 280,000-lbs. of mail were carried.

Clinton M. Hester, CAA administrator, placed a plane at the disposal of WPA officials who were making a survey of the devastated area to plan relief work.

No operating certificates were required for the airlines to extend their services in the emergency. Planes of lines not normally operated into the area were flown on a charter basis. Within limits of safety CAA inspectors were ordered to waive pilots' flying time restrictions.

The Railway Mail Service chartered an Eastern Air Lines DC-3 for cargo of 5,300-lbs. of 3c rate mail from Newark to Boston for distribution from there through the eastern states. This is believed to be the most mail ever carried by one plane, and also the first time mail other than air mail has been carried out of New York-Newark by plane.

American Tells Story

Within a few hours after first storm reports came in American Airlines officials had begun a movement of extra equipment to Newark.

"On the morning of September 22 an avalanche of requests for passage and express deliveries hit the New York offices of American Airlines," the company reported. "A. J. Garipey, district sales manager, recognizing that train service might be disrupted for days, conferred over long distance telephone with Charles A. Rheinstrom, vice president, in Chicago. As a result of that conference, Mr. Rheinstrom in-

vited United, TWA and Eastern Air Lines to relieve passenger demands.

"In Boston on the night of September 21 American personnel worked all night, helping to hold down planes on the ground where a 100-mph gale ripped in off the bay. Some worked 48 to 60 hours without relief. Rod King, passenger agent at the field, checked in 499 passengers himself on Thursday, while Cora Borden teletype operator, sent more than 3,000 messages in four days. Grace Rochefort of the Boston office handled more than 10,000 phone calls in four days. Charles Weaver, American station manager, was on duty at the airport from Wednesday morning to Friday night without relief.

"In the New York reservation offices there were more than 2,000 phone calls an hour, with about 800 an hour having to go unanswered. At Newark Airport William Miller, station manager, worked long overtime keeping planes moving, supervising mail and express, and aiding personnel."

American offered to carry all Red Cross supplies free of charge. Cargoes included serum and chlorine for water purification.

Public Thanks

In newspaper advertisements placed September 30, American Airlines dramatically presented the story of its emergency service, and declared: "We want to publicly recognize and thank Eastern, TWA and United for instantly cooperating and for their fine spirit of service."

Boston & Maine Airways and Mayflower Airlines announced rushing business, although figures were not released to AMERICAN AVIATION. Charter work and emergency operations aided Boston's Inter-City Airlines and E. W. Wiggins Airlines, which reported new records.

The National Guard kept all of its ships in constant duty and the Army Air Corps sent detachments on special missions.

The Goodyear blimp *Puritan* suffered severe damage at its mooring near New Haven, and the owners rushed its sister ship, *Enterprise* from New York to replace it. New England police applied for and were granted permission by Aeronautical Radio, Inc., and the Federal Communications Commission to use WMEW, 40-watt transmitter installed in the bus which was accompanying the *Puritan*.

To prevent possibility of a Boston bread shortage, two New York manufacturers air expressed 1½ tons of yeast.

Charter operations in the area reached a new peak.

Chicago Field Blacked Out When Power Cable Breaks

Chicago, Oct. 3.—Municipal Airport was in darkness for an hour tonight when a break in a power cable cut off flood lights, office and runway lights, and silenced radios in the control tower. M. J. Maloney and John N. Decker, on duty in the tower at the time, immediately used radio equipment in aircraft to notify incoming planes. An American Airlines ship piloted by Tommy Claude and First Officer Patrick Boyer arrived from New York and landed with the aid of its own lights and several lanterns on the field. Pilot J. H. Walker pilot of another AA liner from Fort Worth, stayed aloft for 10 minutes. About six other planes en route to the port delayed arrival time, it was said.

Aid Flood Traffic



These three American Airlines pilots were summoned from Los Angeles to New York to augment New York-Boston service after the hurricane and floods put all other transportation aids out of service. The flyers, left to right, are H. L. Robinson, first officer; F. L. Duncan, flight superintendent, and Capt. Charlie Pedley.

Northwest, United Agree on 45-Day Rate Cut Period

Round trip fare reductions over Northwest Airlines' system which were to go into effect Oct. 1 have been postponed to Nov. 1, at which time United Air Lines will join in a joint trial period of educational fares for 45 days, it was decided in Washington Sept. 28.

United protested Northwest's reduction, and the CAA called an informal meeting. Finally United agreed to meet Northwest's rates, and Northwest consented to postpone effective date for 30 days. It is expected that a formal CAA hearing will result before the end of the trial period. Harold Cray represented United, and Croil Hunter was present from Northwest.

Northwest argues that since it cannot offer sleeper plane service between Chicago and the west coast, as does United, it has a right to reduce rates. It also feels that its through ticket holders should enjoy the same economies which are already in effect on a number of divisions of the main line.

United's position is that any price cutting will have an adverse effect on the entire rate structure. It holds that even if such action were advisable, the months of January, February and March would be better suited than the heavier months of October, November and December.

Northwest's round trip rate, representing as much as 13% saving over summer fares, is about 3½c a mile. The fare schedule between Chicago and Twin Cities would not be changed.

Braniff Airways Sept. 18 cut fares at various points along its system, both for one way and round trip sales. Typical examples are: Brownsville-Chicago one way now is \$74.85 instead of \$79.95 and round trip is \$134.72 instead of \$143.90. Chicago-Oklahoma City one way is \$37.50 instead of \$40.95 and round trip is \$67.50 instead of \$73.70. The competitive Chicago-Kansas City fare, reduced a short time ago, remains at \$21.50 one way and \$38.70 round trip.

CAA TO INSTALL DIRECTION AIDS

Locations of First Broadcasters Will Be Settled in Conferences; Lines Submit Plans

The CAA has approved immediate purchase and installation of "several" radio direction finding ground stations which will further safeguard operation of domestic airliners by giving them an additional check on their position in flight, it was announced Oct. 5 at the meeting in Washington of the Air Transport Association's operations committee with the Authority and the Air Safety Board. Pan American uses direction finders in Latin America and in the Pacific with success. Additional stations will be built if trials are successful.

Ralph S. Damon, chairman of the committee, informed the Authority and the Air Safety Board of the steps already agreed upon by the airline operators in promoting safety during the coming winter. All three transcontinental routes have already reduced cruising speeds below those of last winter, and Northwest has joined in the program, although its schedules will be faster than last year because it now operates larger and speedier equipment. The lines, all using 1100-hp. engines or better, will operate at 550-hp. for normal cruising, with a permissible maximum of 600-hp.

The lines have also formulated strict regulations for landings in mountainous areas during murky weather.

A subcommittee of the operations group will meet in Chicago the week of Oct. 17 with Earl F. Ward, chief of the airways operation division of the CAA, and the air traffic control tower operators to discuss recommendations by the industry on air traffic control in general, and at Chicago, Los Angeles and Newark in particular. This meeting will follow a conference in Chicago Oct. 13 by the members of the Air Line Pilots Association, a CAA representative, the administrator, and members of his staff, and Col. Sumpter Smith and Mr. Hardin, at which problems discussed in Washington with the airline operators will have been taken up with the pilots.

On the operations subcommittee are Larry G. Fritz, TWA; Hugh Smith, American; Frank Caldwell, United; and Larry Pabst, of Eastern.

Location of the new direction finders will be decided after further CAA-industry conferences, but they are certain to be placed at strategic points where their aid will be of most value in case of static or other interference with radio beacon signals.

Gilpin Chief Marries

Tucson, Ariz., Oct. 5.—Walter Douglas, Jr., head of Gilpin Airlines and son of the president of the Southern Pacific Railroad of Mexico, and Miss Annabelle Spriggs Wager, University of Arizona student, were married here today.

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The Birdmen's Perch

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MAJOR AL WILLIAMS, alias "Tattered Wing-Tips,"
Mgr. Gulf Aviation Products, Gulf Bldg., Pittsburgh, Pa.

NEW BUSINESS DEPT.

We're thinking about inaugurating a new feature: a sort of monthly Aviation Quiz to cover anything from the names of five planes beginning with Z to What's the best thing to do if your motor drops out at 20,000 feet?

But, first, let's have your comments with a few suggestions as to suitable questions. Don't let us down. Give us permission to use your name and we'll give you a credit line. *No foolin'!*

FOR THE MATH-MINDED

You have 40 gallons of Gulf Aviation Gas (adv.). You want to be able to measure any number of gallons from one to forty. The only way you can do it is by pouring it into cans. Which, by the way, may be any size.



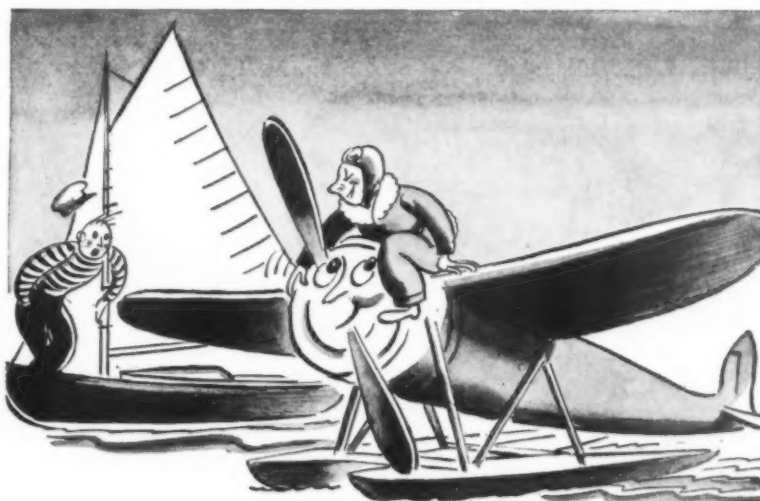
So-o-o . . . what is the fewest number of cans needed to do the job? Also, their sizes? The only condition (this is what hurts the most) is that you can use a can only once in measuring any given amount.

(Mail your answer to T.W.T. You'll be surprised and pleased, probably more surprised than pleased, when you see the correct result.)



Out here at Gulf we believe that no effort should be spared to make our airplane oil the best in the world.

That's why, in addition to conventional methods, we use the famous Alchlor process to refine Gulfpride and Gulf Airline Oils. This exclusive, Gulf-owned process



digs down extra deep into the 100% Pure Pennsylvania — removes as much as 20% more black sludge and waste.

THIS MONTH'S WHOPPER

Dear Major:

Well, sir, last week I was cruisin' on my little boat, The Question—(her full name "Yaw! Ketch Any Fish?")—when I seen an airplane bobbin' up and down on the water. "Hey!" hollers the pilot, "where's the nearest landfall?"

Well, sir, I couldn't resist that one. "What do you want a landfall for?" I yelled. "You've done made a waterfall!"

But he didn't laugh none. "I'm outta gas," he says, nasty-like. "You got any?"

"No gas here," I comes back. "This thing runs on wind."

"So does this!" he snaps, "but it takes gas to start it! . . . Where am I, anyway? Can't be the Missouri 'cause I don't see no mud!"

"It's the Missouri, O.K." I tells him. "But she's growed a little. This yere's the Gulf of Mexico."

"Quit your kiddin'" he says, suspicious-like. "I don't hear no Spanish Music. Besides all this palaver ain't gettin' me no gas."

Then he sort of snapped his fingers and clomb out on the wing. I thought she

was sinkin', but no! By grannies, he began to pat that engine and talk to her. And dang my binnacle's barnacles if it didn't bust out into a roar!

"How'd that happen?" I hollers.

"Well," says he, throttlin' her down, "you told me where I was and that was enough. I just whispered into her ears. 'Honey, this is the Gulf . . . this is the Gulf'. That's all she needed. Just mention the word Gulf to a plane engine and she feels like a kid. They ain't nothing like Gulf Aviation Gas, sailor. Honest, they run better on the thought of Gulf Aviation Gas than on some stuff out'n a pump."

And dang my rudder post, if he didn't take that thing offen the water and buzz outta sight! That's why I'm gettin' a motor for The Question, stranger. I wanta burn that Gulf Aviation Gas, too.

R. H. Wade

Gulf Oil Corporation and Gulf Refining Company . . . makers of



\$7,000,000 Airway Aids Scheduled for Completion in Jan., Noble Says

Teletype Weather Communication System Extension Already Finished; Total of 181 Simultaneous Radio Range Stations, 100 Cone of Silence Markers Included

The \$7,000,000 Federal airways modernization and expansion program which was commenced a year ago is rapidly nearing completion and the commercial airlines will have available for this winter's operations a greatly augmented and improved system of airways complete with many of the most recently developed aids to air navigation, Edward J. Noble, Chairman of the Civil Aeronautics Authority, announced Sept. 27.

A number of new radio stations, beacon lights, new type ultrahigh frequency stations and fields are now ready for use and others are being added as fast as construction can be completed and equipment installed.

When the program reaches completion, at the end of January, 1939, the Federal Airways System will have been completely modernized and improved, with the addition of 181 simultaneous radio range stations; 30 loop type ranges; 100 cone of silence markers; 21 fan type markers; 7,000 miles of teletype circuits; as well as landing fields, beacons, and other airway aids.

The teletype weather communications system extension has already been completed. This extension increased the system by 7,000 miles of circuits, bringing the total to 21,790 miles covering all of the 48 states with the exceptions of Maine, New Hampshire and South Dakota.

Eighty-one new simultaneous radio range and communications stations of the vertical radiator type which permit signal and voice broadcasts at the same time are being erected at points in 34 states, while fifty old style non-simultaneous radio ranges are being converted to the simultaneous type.

In addition, thirty ranges of the medium and low powered loop type are being installed, which permit signal and voice broadcasts independently of one another. On these ranges the pilot throws a switch which changes his frequency from voice to signal, as he chooses.

One of the major items in the modernization program and an innovation which will have an important bearing on safer aerial navigation has been the installation of ultra-high frequency cone of silence markers at all the new vertical radiator stations and at 18 of the modernized stations.

"The cone of silence marker is a 75 megacycle radio transmitter, which sends a vertical beam up into the cone of silence that exists directly above a radio range station. It transmits a distinctive and positive signal which gives the pilot definite assurance that he is passing through the cone of silence. At the same time a small red light flashes on his instrument board as a double check on this fact," the CAA explained.

"The airways modernization program also calls for installation of 21 ultrahigh frequency radio markers of the fan type, which not only help to simplify traffic control but indicate ground hazards to airmen flying above or through the clouds as accurately as lighthouses tell marines the position of hidden reefs. Of these, eleven are already in operation at Stone Mountain, Ga.; Lansing, Ill.; Sheridan, Ill.; Mt. Prospect, Ill.; Yonkers, N. Y.; New Brunswick, N. J.; Morris Plains, N. J.; Hobart, Wash.; Bowie, Md.; Mason Springs, Md.; and Herndon, Va. This type marker is fixed at points where

airplanes report to the traffic control tower when approaching an airport. It consists of an interrupted signal in the pilot's earphones and a red light flashing on his instrument board, and facilitates the safe and orderly control of traffic at busy airports, particularly for instrument approaches in thick weather. The control tower can instruct pilots approaching an airport on instruments to remain at the points where the fan markers are operating instead of in the immediate vicinity of airports.

"Other work, less spectacular in description but no less important in its bearing on safe flying, such as the installation of 140 automatic generators for supplying emergency power at radio stations, miscellaneous airways improvements and relocations of airways to eliminate possible hazards, has been accomplished.

"The distribution of expenditures maintenance and operation of the airways system shows a developing preponderance of expenditures devoted to radio and communications. Whereas in 1932 over half the expenditure was for airways lighting and intermediate fields, of the \$7,000,000 appropriated for 1937-38, \$5,000,000 will be spent for radio and communications, and \$2,000,000 for ground aids."

Papana Plane Flies

New York, Oct. 3—Capt. Alexander Papana's twin-engined Barkley-Grow transport was testflown at Roosevelt Field today by James B. Taylor. It has been overhauled by Aero Trades Co., since Papana overshot an airport in an emergency landing several months ago, just before he was to start a non-stop flight to Rumania.

Another Instrument System

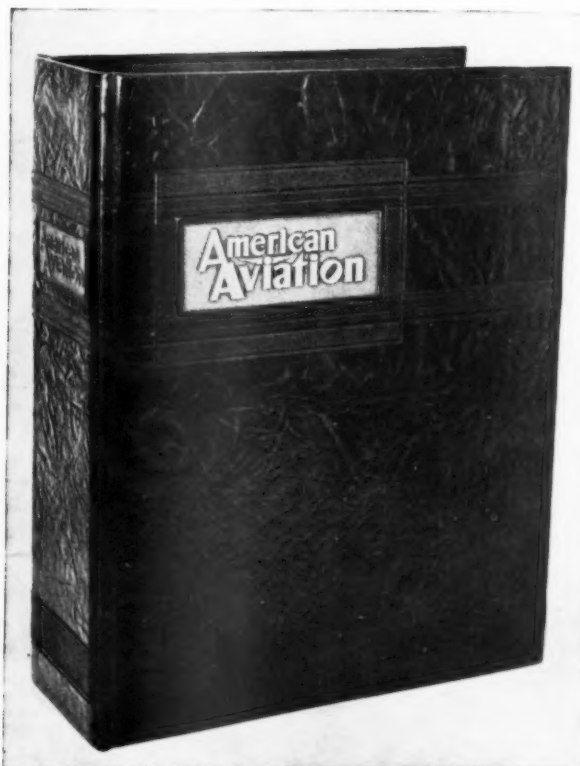
Cheyenne, Wyo., Oct. 4—An instrument landing system at municipal airport here will cost about \$12,000 and make Cheyenne one of three cities in the United States so equipped. The other two airports with such instruments are Oakland, Cal., and Chicago. The installation will call for the erection of an instrument building, 20x20-ft.

Henderson Returns



Phil Henderson, business manager of the National Air Races, shown as he boarded a TWA Skysleeper at Chicago recently on his way to California after the big Cleveland show. Phil and Cliff, his equally famous brother, also operate the Pan Pacific Auditorium in Los Angeles.

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ROTATING WING PLANS COMPLETE

About 20 Lectures and Papers to Mark
General Meeting Scheduled For
Oct. 28-29 at Philadelphia

Philadelphia, Oct. 7.—The Philadelphia Chapter of the Institute of the Aeronautical Sciences today announced the complete program of the Rotating Wing Aircraft Meeting to be held at Franklin Institute here Oct. 28-29. The event will be the first free discussion in this field open to all engineers in the aircraft industry. Scope of the meetings will cover uses, developments and relation to the future of heavier-than-air craft. The Franklin Institute and the Aero Club of Pennsylvania are cooperating.

A special lecture at the regular Institute meeting at 8:15 p. m. October 27, by Dr. Alexander Klemin, professor at Daniel Guggenheim School of Aeronautics, New York University, will precede the two day program. The professor's subject will be "Rotating Wing Aircraft."

On October 28, after registration, the morning program will open with a lecture, "Review of Rotating Wing Aircraft," by Ralph H. McClarren, of the Franklin Institute. Then will follow these talks on the general subject, "Development and Improvement": "The Autogiro," by Richard H. Prewitt, Kellett Autogiro Corp.; "The Convertiplane," by Gerard P. Herrick, Vertoplane Development Corp. of New York; "The Helicopter," by H. H. Platt, New York; "The Gyroplane," by E. Burke Wilford, Pennsylvania Aircraft Syndicate.

Afternoon lectures on October 28, under the general topic of application and uses, include: "Military Uses," by Frank J. G. Dorsey; "Agricultural Uses," by A. G. Galloway, U. S. Department of Agriculture; "Army Experiences," by Lieut. H. F. Gregory, U. S. Army Air Corps; "Piloting Technique," by John M. Miller, Kellett Autogiro Corp.; and "Unique Uses," by James G. Ray.

The delegates will visit Aviation Country Club at Wings Field after the lectures October 28 to witness flight demonstrations. Casey Jones will be toastmaster at the evening banquet, and Russell Hays will be in charge of the luncheon program.

Lectures Saturday mornings, under the heading of research, include: "New York University," by Dr. Klemin; "Georgia School of Technology," by Prof. Montgomery Knight; "National Advisory Committee for Aeronautics," by R. A. Bailey, staff member.

Other morning lectures, discussing "Future Types and Developments," include "The Helicopter in Europe," paper from Louis Breguet; "The Hafner Gyroplane," paper from Raoul Hafner; "Future Types of Gyroplanes," by Paul E. Hovgard, Curtiss Aeroplane Co.; "High Speed with Safety," by Dr. Max M. Munk, Washington, D. C.; and "Helicopter Performance," by W. Laurence LePage, Philadelphia.

T. P. Wright will be chairman of the development and improvement meeting. W. Wallace Kellett will be chairman of the session devoted to application and uses, and Dr. George W. Lewis, director of aeronautical research, of the NACA, will be chairman of the discussion on research. Discussion periods will follow the lectures on October 28.

Members of the committee are E. Burke Wilford, chairman; Agnew E. Larsen, W. Laurence LePage, Richard H. Prewitt, James G. Ray, and Mr. McClarren, secretary.

Pan Am Losing \$95,000 a Month On Pacific Route; Asks Mail Hike

Pan American Airways is losing approximately \$95,000 a month on its trans-Pacific operations and is maintaining only 60% of its original schedules, due to shortage of equipment, the company reports to the CAA in the first application for an increase in mail payment, filed with the CAA. In the calendar year of 1937, the first year of full commercial operation, the San Francisco-Hong Kong service deficit was \$474,858.87, and for the first six months of 1938 the loss was \$373,523.59.

These losses, the company says, are after appropriating 20c an airplane mile flown on this route to a self-insurance reserve but do not include any charge on account of the loss of the Samoan Clipper in January, or any other development or operating costs of the New Zealand route. The loss of the Hawaiian Clipper on July 28 is not included in loss figures submitted.

Stating that the present rate of mail payment is equivalent to \$4 per plane mile outbound only, the petition says a fair and reasonable rate would be \$7 per airplane mile on outbound flights only for a maximum mail load of 800-lbs. per trip, plus \$1 per pound per 1000 miles or fraction for any excess over 800-lbs. per trip or any part of the route, plus \$8 per pound on U. S. mail carried on inbound flights from Guam to Honolulu, \$16 a pound on such mail carried from Guam to San Francisco and \$8 a pound on such mail carried from Hawaii to San Francisco. The revenue from foreign (including Philippine) mail transported would be

for the account of the carrier. These terms take into consideration higher costs of larger planes (Boeing Clippers) and greater revenue expected, it is announced.

Only 90% performance has ever been realized on the route, and since the Hawaiian Clipper's disappearance July 28, only about 60% service has been offered. "So that, instead of an average loss of \$62,253.93 each month as during the first six months of 1938, average losses during the last five months of the year are estimated at \$95,000 per month, without considering the loss of the Hawaiian Clipper, over and above insurance reserve," the line revealed.

A fair and reasonable rate must enable maintenance of at least four ships or, as an alternative, make possible creation of reserve to compensate for loss of revenue due to omission of schedules resulting from a lack of suitable reserve equipment, it is said.

"The heavy losses indicated above have prevented the applicant from establishing the necessary credit to finance the purchase of such equipment, and if applicant is to obtain such equipment, its purchase must be financed by the applicant's parent company, Pan American Airways Corp. It is evident that if these losses continue, the financing of applicant's procurement program would not be feasible," the petition reads. It was filed Oct. 4.

The company began scheduled mail service on the route in November, 1935, and passenger carriage was opened in October, 1936. Two planes now are in this service.

Louis, Cincinnati, Dayton, and Detroit, and will again tap Toledo when that city's airport is okayed by the CAA.

John McKelvy, Pittsburgh capitalist, owner of all of the line's outstanding stock, also testified. A. G. Nye was the examiner, Samuel E. Gates represented the CAA, Dwight Green was Marquette counsel, and H. O. Hale represented American Airlines. G. B. Brophy appeared for TWA. It was the first public hearing held by the authority.

Last TCA Lockheed

The last of 15 Lockheed 14's ordered by Trans-Canada Air Lines has been delivered to the company, according to announcement by Robert Gross, president of Lockheed Aircraft Corp. The fleet was built at a cost of \$1,516,660.

P&W Motors Exceeded Takeoff Ratings in Thompson Trophy Race

East Hartford, Conn., Oct. 6.—Pratt & Whitney Aircraft Division of United Aircraft Corp. today released technical reports on two P & W engines entered in the Thompson Trophy race in Cleveland on Labor Day.

"Roscoe Turner, the winner, flew a special racing plane powered with Twin Wasp SBG No. 177, which was built and shipped in June, 1936," it was announced.

"This engine is rated at 900-hp. at 2450-rpm. at 6500-ft. with 100-hp. at 2600-rpm. for takeoff (41.3 inches manifold pressure). It is a standard commercial engine. Col. Turner flew the entire race, slightly over one hour, at 2600-rpm. with 47 inches manifold pressure. This means that his manifold pressure exceeded the takeoff limit by 6.7 inches. His gas consumption was 185 gallons, average speed from standing start 283.416-mph. and fastest lap (10 mile rectangle) was 293-mph."

Earl Ortman, placing 2d, flew a special design powered with the obsolete Twin Wasp Junior S2A5G No. 422, built in June, 1936, as a test engine and overhauled and delivered to him in June, 1937, with Blower gears to give it the same amount of supercharging as the current SB4G model.

"The S2A5G was rated at 700-hp. at 2500-rpm. with 750-hp. at 2550-rpm. at 36.5 inches manifold pressure for takeoff," it was reported. "Mr. Ortman flew 27 laps at 2675-rpm. and 48.25 inches manifold pressure, with no trouble. This was 125-rpm. and 11.75 inches manifold pressure in excess of the takeoff limits for this type. In the 27th lap he ruptured an oil inlet line and his oil pressure dropped to zero. Being so close to the finish, he pulled up to approximately 1,500-ft. altitude and finished the three remaining laps at reduced power, badly damaging his engine (which, however, kept running until he cut the switch), but retaining his 2d place in the race."

P & W engines finished 1, 2, 4, 5, 6 in the Bendix and 1, 2, 4, 5 in the Thompson. T. E. Tillinghast, sales manager, said.

DC-4 Interests KLM

D. K. Parmentier, chief test pilot of K. L. M. Royal Dutch Airlines, is enroute to the United States for an inspection of the Douglas DC-4. He was scheduled to reach this country Oct. 12. KLM operates a fleet of Douglas transports.

Mercury Misses Record

The British composite seaplane, Mercury, landed 380 miles short of its destination, Capetown, South Africa, early this week on a flight from Dundee, Scotland, in a vain attempt to break the long-distance record of 6,296 miles. It will return to London by easy stages.

Marquette Airlines Withdraws Application To Lease Two DC 2s

An application to the CAA by Marquette Airlines for permission to lease two DC-2 liners from American Airlines was suddenly withdrawn October 10 at the opening of the second session of the hearing. Counsel for Marquette declared his client has decided to purchase equipment. The hearing on October 7 was interrupted when Transcontinental & Western Air made known its desire to be represented, requesting adjournment to a later date. Motion of counsel for the applicant will be granted subject to the approval of the Authority. The record of testimony which was given will stand, however.

Marquette has been using three trimotored Stinson A's under a lease with American Airlines dated Feb. 12, 1938, and running to Aug. 12, 1938. Since that time a month-to-month arrangement has prevailed. For the two planes in regular service the charge has been \$5,000 per plane for the 6-month period. A minimum of \$50 a month plus \$7.50 per hour operated has been paid for the third ship, on reserve. Winston Kratz, St. Louis, president of Marquette, estimated American has received to date \$13,333 for the two full time planes and \$600 for the reserve ship.

Present equipment is inadequate for the growing passenger traffic (no mail is carried), and maintenance is high for the planes, built in 1934, Kratz said. One plane, taken out of service upon recommendation of CAA inspectors, was replaced by the lessor.

Cash investment in Marquette to date has been about \$75,000 Mr. Kratz said. Operations began May 4, 1938. Total revenue to Oct. 1 was estimated at \$5,000. Operating expenses to Oct. 1 were between \$75,000 and \$85,000. About 80% of the scheduled trips have been completed. The line serves St.

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Cotton Paved Port Opened in Alabama; Industry Awaits Test

Anniston, Ala., Oct. 1—Reilly Field, first cotton-paved airport in the world, was dedicated today in a ceremony that attracted military, agricultural, aviation and political figures. Congressman Sam Hobbs, who promoted the experiment, made the dedicatory address.

The project, initiated by the War Department, through the Works Progress Administration, required about 20 bales of cotton on the two runways, which are 150-ft. wide and 2,500 and 1,300-ft. long. The surface was laid at a cost of 36¢ a yard, said to be 5¢ under the estimate. The cotton fabric was alternated in 20-ft. strips so that study could be made of cotton's value as reinforcement for asphalt. To date, operators of 52 commercial airports have asked Reilly Field authorities to keep them informed on results.

The cotton paving procedure here was planned by the American Bituminous Co., of San Francisco. Emulsified asphalt is mixed with four inches of dirt and the surface is rolled. Cotton fabric is laid in a thin spreading of emulsified asphalt and on top of that goes a mixture of asphalt, crushed slag, and sand. Southerners hope this new use for their product will find universal favor, and are watching developments closely.

Judge Rules for Airport

Tulsa, Okla., Sept. 22—A ruling that the municipal airport is operated under a state statute and cannot constitute a nuisance was made here yesterday by Judge William Randolph, in sustaining a demurrer to the suit of Misses Maudellen and Rose A. Littlefield for damages and an injunction against planes taking off and landing there. The Littlefields had alleged (AMERICAN AVIATION Sept. 15) that the value of their property, at the north end of the main runway, was reduced by the noise.

December Philly Opening?

Philadelphia, Oct. 2—Mayor Wilson announced yesterday that the city is ready to advertise bids for construction of the administration building at municipal airport. He foresaw operation of the field by early December.

Plan Next Cub Envoy

Lock Haven, Pa., Oct. 5—Piper Aircraft Corp. officials, planning the next Cub Envoy for December or January, are considering several cities for an all-Cub air show and entertainment. It is felt that the tour is too important an event to be subordinated to the Miami air meet. Last December 84 Cubs flew approximately 160,000 miles to the Miami All American Air Maneuvers.

Joins Roosevelt School

George Kuntz, a graduate of the Guggenheim School of Aeronautics, New York University, in 1932, has been added to the staff of the Roosevelt Aviation School. Kuntz has had five years' experience in the engineering departments of Fleetwings, Inc., Bristol, Pa., and Sikorsky Aircraft Corp., Bridgeport, Conn.

Hartford Club Elects

Hartford, Conn., Sept. 29—Warren Hedges has been elected president of the recently organized Nutmeg Aviation Club, which will offer ground work instruction courses. Elmer Wyllis, Manchester, is vice president, Frederick Winegar, Hartford, is treasurer. Miss Bertha Shientop, Hartford, is secretary. Winegar, associated with Sikorsky Aircraft Co., is also adviser. Club rooms are at 285 Hartford Ave., Wethersfield.

NON-SCHEDULED Aviation



South Laying Cotton Runways

One of the phases in the construction of the world's first cotton runway is shown at Reilly Field, Fort McClellan, Ala. Workmen are unrolling "osnaburg" (cotton fabric) behind a truck which is spreading a tar preparation to hold the cotton. The cotton is covered with asphalt and then rolled to complete the resilient runway. Dedication ceremonies were held Oct. 1. (International News Photo).

No Plea For WPA Money Here! Citizens Invest in Their Field

Olney, Ill., Oct. 3—This progressive midwestern city has decided to tackle the airport development problem in the most difficult way—without PWA or WPA aid. And civic leaders are confident of success. Olney Airport, Inc., has been formed and stock in the firm will be sold to citizens interested in the community's welfare. An 80-acre tract has already been rented a quarter of a mile from the city and the owner of a tract separating the field from a highway is allowing a road to be built through his property. With generous assistance of oil companies, the city, and local implement firms, the field is being readied for operations. The next problem is finding \$1,900 for a hangar and money for installing runways and appurtenances. But Olney citizens are not worried. A community that has accomplished so much cooperatively will see that progress isn't halted now. Marquette Airlines already has hinted it may stop on its St. Louis-Cincinnati route if the field is put in ship shape. Other cities clamoring for public money please take notice.

New Red Bank Director

Red Bank, N. J., Oct. 2—Walter R. Laudenslager has assumed management of Red Bank airport in association with Gillies Aviation Corp., Hicksville, L. I., Franklin T. Kurt, secretary of the airport firm has announced. Jack Casey, affiliated with the port since 1925, has disposed of his interests here.

Hawkins Opens School

Los Angeles, Cal., Oct. 5—Western Air College, directed by K. C. Hawkins, has been established at Alhambra Airport here, with courses in instrument flying, aircraft and engine mechanics, and sheet metal work.

Organize Glider Club

Frankfort, Mich., Oct. 10—Residents of this city have organized the Frankfort Glider Club, and have purchased a motorless ship. Stan Corcoran, Hollywood, Cal., soaring pilot, is in Frankfort temporarily to act as instructor.

Nebraska Study Course

Lincoln, Neb., Oct. 3—The Nebraska aeronautics commission has completed plans for a course of study in aviation fundamentals to be used in the various schools in the large cities of the state, the free course to include aerodynamics, meteorology, navigation and mechanics. Classes will be open to all persons over 16 and will be conducted two nights a week. An experimental school to be located at Omaha, Lincoln or Grand Island, will be started this fall, it is planned.

Development Plan For Bendix Airport

Bendix, N. J., Oct. 8—Bendix Airport here, formerly Teterboro Airport, will undergo extensive improvements shortly including doubling the length of present runways, a new beacon, boundary lights, installation of weather service, and new hangar and servicing facilities. Vincent Bendix announced today. Work will be done by Bendix Airport, Inc., recently incorporated at Trenton. The blimp hangar now at Jackson Heights, L. I., owned by the airship division of Goodyear Tire & Rubber Co., will be moved here.

Adjoining the 400-acre field is 100 acres of property on which Bendix Aviation Corp. is completing a new manufacturing plant. A lease, with option to buy, has been taken on the field up to 1945. It was at Teterboro that Anthony H. G. Fokker's manufacturing activities and the first New York-Boston air mail service were based, and the finish line of the Bendix Transcontinental air race has been here for two years. Officers of the airport corporation are Mr. Bendix, president; Harry A. Bruno, vice-president; Louis F. Mitten, treasurer, and Harold Hoffmann, secretary.

Binghamton Field Open

Binghamton, N. Y., Sept. 27—Tri-Cities Airport was reopened today after two years of development costing \$220,000. Samuel A. Mauriello is airport manager.

Two Nebraska Aero Groups Organized

Lincoln, Neb., Oct. 3—Two organizations have been formed in Nebraska recently to further the interests of aviation in the state. At Hastings more than 50 Nebraska flyers, mechanics and airport managers founded a state group. Charles Doyle of Omaha, until recently secretary of the state aeronautics commission, was elected president. Other officers are Alva White of Lincoln, vice-president, and Ray Beebe, Hastings, secretary-treasurer. Directors are Verne Hainline, Grand Island; Clair Blake-man, Norfolk; Barney Burnham, Omaha; Max Kier, Lincoln; Ed Critchfield, Tecumseh; Everett Hogen, Scotts-bluff; Dr. O. A. Kostal, Hastings, and Clarence Miller, Valentine.

At Omaha the Aeronautical Association of Omaha has been organized on a plan identical to that of the new Aeronautical Association of Nebraska. Tom Ballard, Omaha police sergeant and licensed pilot, was elected president by the 43 charter members who attended the organization meeting. John Frazey was elected vice-president and John Morrison, secretary-treasurer. These officers and Dutch Miller, Barney Agee, Marion Nelson and Dr. Paul Read, make up the board of directors of the Omaha association. Meetings will be held the third Tuesday of each month.

Charter Service Carries 52,500 Without Accident

Wolfeboro, N. H., Oct. 1—Capt. Robert S. Fogg, head of Fogg Seaplane Service here, has completed his 16th season of seaplane and flying boat operation on Lake Winnepesaukee, having carried in that time 52,500 passengers without accident or injury. His record day for this season was 53 flights, carrying 207 passengers, over half of whom had never flown before. In 12 weeks this summer, Capt. Fogg made 800 flights and carried 2,500 passengers on sightseeing and charter trips. He was based at Weirs for 15 years, but moved to Wolfeboro for this year, and will operate from this base again next season. Capt. Fogg, who is his own pilot, operates a Beechcraft seaplane.

State Suspends Licenses

Boston, Oct. 2—The aviation division of the State Registry of Motor Vehicles has suspended 50 pilots licenses and registrations of four aircraft because the holders have not registered their federal certificates with the state body. Frank A. Goodwin, registrar, said yesterday.

E. R. Dowling Appointed

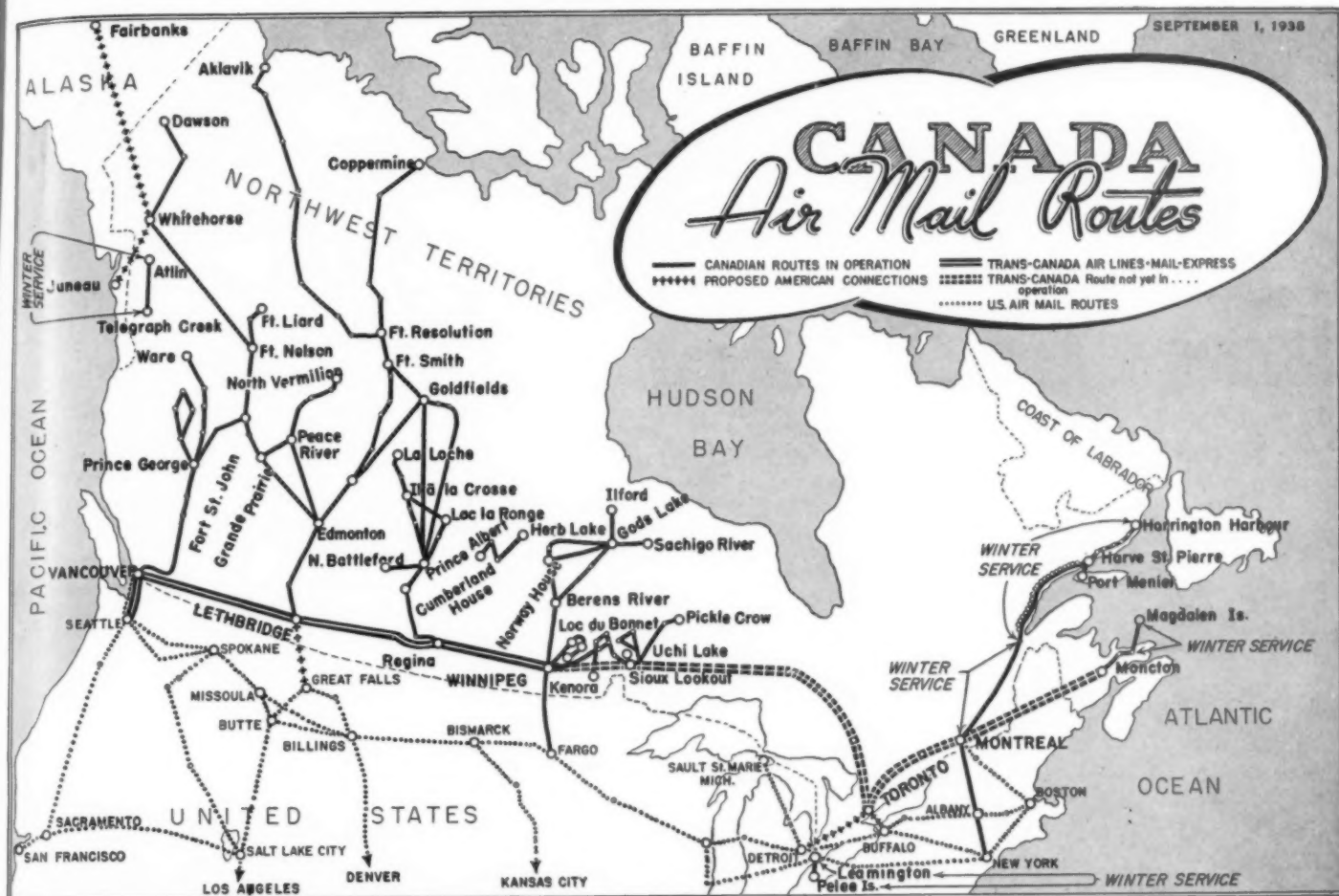
Montgomery, Ala., Sept. 30—E. Ralph Dowling, manager of Dothan Municipal Airport, has been appointed a member of the Alabama Aviation Commission. He succeeds L. G. Mason, former manager of the Montgomery Airport, who has moved out of the state.

Weems Courses Start

Philadelphia, Oct. 11—Courses in dead reckoning and celestial navigation, under Comdr. P. V. H. Weems, will be given at the Franklin Institute here every Tuesday night, starting tonight, and at the Hayden Planetarium in New York each Wednesday, starting tomorrow.

25,000 at St. Louis

St. Louis, Mo., Oct. 3—A crowd of 25,000 persons today jammed Lambert Field to see an exhibition of commercial, private, and Naval Reserve flying heralding the opening of National Air Travel Week.



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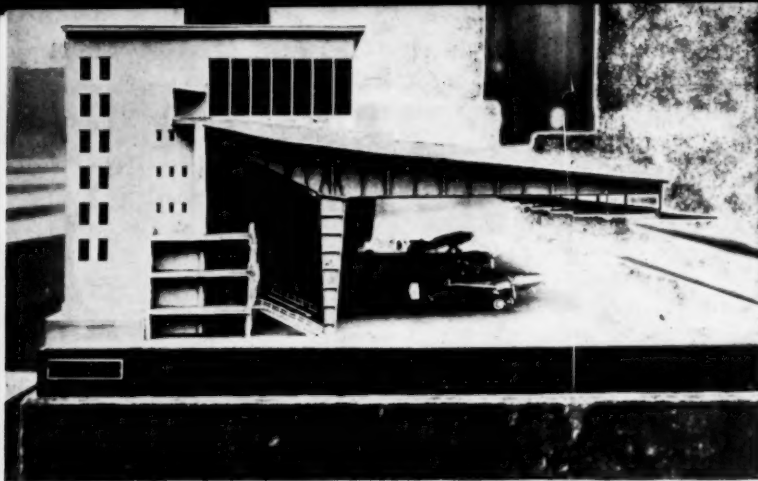


Photo of a model of Tempelhof at Berlin showing plan of construction. On the cantilever roof is a stadium arrangement seating many thousands, providing a cover also for planes loading and unloading.



A model of the entire project at Tempelhof. Note railroad tracks leading into the airport buildings. Length of the rim of buildings is three-quarters of a mile.

Airport Terminals

Paris . . . Berlin and Washington



Upper: Close-up view of entrance to the field. The airport manager's office is above passageway.

Right: View of the terminal building at Le Bourget from the field. Note space for visitors on roof and visibility of the field from all offices fronting on the landing area.



Bus and limousine loading platform at Le Bourget. Note insignia of European capitals and cities reached by air from Paris.

Interior view of Le Bourget's terminal, showing modernistic effect and office corridors. The Post Office is at the far end.



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is



Front view of the model. Buildings not used for airline operation will be for German aviation activities, military and civil. Passenger platforms are in the center foreground.



Side view of the Tempelhof model showing relation of the field to the various building units and also of the stadium sections overlooking the landing area.

Comparison

A new and federally-owned airport for the nation's capital is under way. After almost twelve years of delay, arguments, bickering and obstructions, the new Civil Aeronautics Authority, with the active aid of the White House, is sponsoring a model terminal only a few minutes from the down-town section of the city at Gravelly Point. The Authority will be aided by the Works Progress Administration and the Public Works Administration.

On these pages are photos of what has been and is being done in two of Europe's capitals. The new and enlarged LeBourget Airport at Paris with its magnificent new administration building, has been completed. The Tempelhof Airport in Berlin, representing the most ambitious airport terminal project in the world, is under construction and several units have been completed.

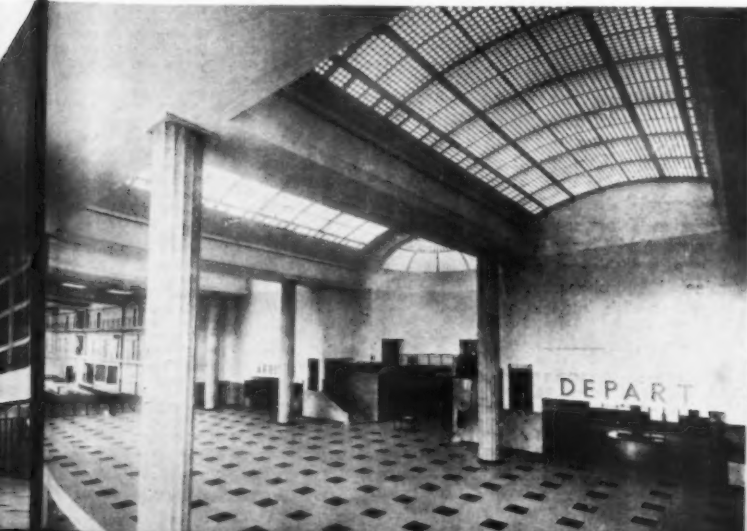
Detailed plans for Washington's new airport will be available shortly. Located directly on the Potomac between the river and the Mount Vernon Memorial Highway, the new site should provide room enough for all needs in the immediate future. It is subject to expansion toward the south. It is possible that buildings at the airport will house the personnel of the Civil Aeronautics Authority.

The Berlin and Paris photos on this page are reproduced through the courtesy of John W. Wood, consultant engineer and member of the firm of Poor and Wood, New York City. Mr. Wood recently returned from Europe where he inspected a number of major airports.

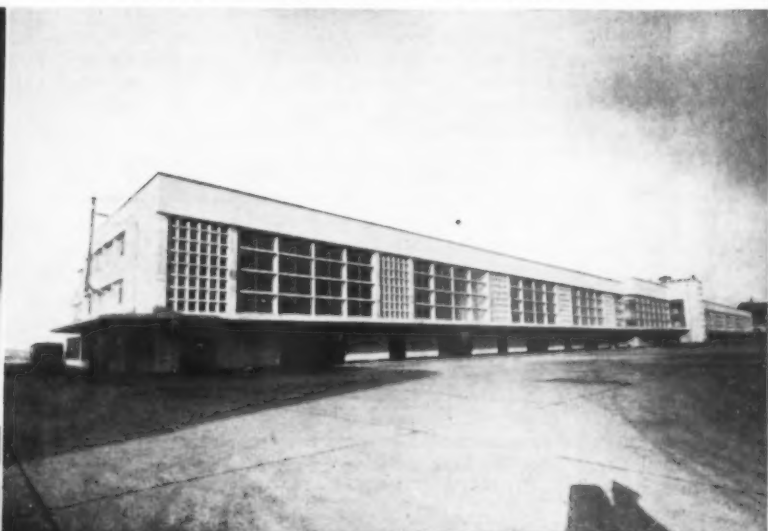


Aerial view of Washington, D. C., showing site of new airport at Gravelly Point (1); existing privately-owned Washington airport (2); highway bridge connecting with the city (3); New Bolling Army Field (4); and old Bolling Field and Naval Air Station (5). Army Air Corps Photo.

Interior view at LeBourget showing arriving and departing passages leading to field. Note spaciousness of waiting room.



View of the terminal from opposite side of the landing field showing large space available for unloading of passengers from autos.



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FORTNIGHTLY REVIEW

(Continued from page 1)

with aviation's lay constituents who still believe that power rests with "We, the People."

Subsidy Bug-a-Boo

SOMETIMES we get wearied by the constant reference to air mail subsidies. There is a prevalent idea—aided and abetted by statements by federal officials—that the airlines are being subsidized by the Post Office Department. But there is also good reason to believe that there is no subsidy for the industry as a whole.

A few weeks ago in St. Paul, Minnesota, Paul R. Younts, postmaster at Charlotte, North Carolina, who was chairman of National Air Mail Week last May, reported to the National Association of State Aviation Officials that indications are that use of air mail will double merely as a result of the advertising which Air Mail Week gave to flying the mail.

According to the 1937 report of the Postmaster General, 12,732,530,874 pound miles of air mail was flown in that year. The Interstate Commerce Commission air mail docket No. 19 report states that according to the Post Office cost ascertainment figures, air mail postage revenues have been approximately 1 mill per pound mile. Multiply the number of pounds by 1 mill and the 1937 postage revenue to the Post Office Department from air mail would be \$12,732,530. Double this amount in accordance with Mr. Younts' report and the amount would be \$25,465,061, which is somewhere near what the Post Office Department appropriation for air mail should be if air mail is to pay its fair share of the costs of airline operation and normal development.

But let's figure this another way. The annual report of the Postmaster General shows that 19,553,543 pounds of air mail was carried in 1937. Once we took the trouble to weigh up a pound of air mail letters we were sending out and found that there were about thirty letters to a pound. From other sources we learn that sample checks have shown as high as forty letters to the pound, but let's be conservative. Multiply the number of pounds given above by 30 pieces of mail and the answer is 586,606,290 pieces. Then multiply this number of pieces by six, the postage in cents on each, and the answer is \$35,196,377. Even deducting 20% for the weight of the mail bags leaves an air mail postage revenue of over 28 million dollars. Also, something should be deducted for duplication in weighing. But it all makes some of us wonder how much more than the \$15,500,000 paid air mail carriers this year the Postmaster General will get from postage.

Editorial Alertness

OUR ably edited contemporary, *U. S. Air Services*, deserves commendation for its editorials on air transport in the September and October issues. Using as a formula "Fair Air Mail Pay Plus More Planes Equals More Passenger Traffic," Earl Findley, the editor, posed some vital questions. He sent reproductions of his editorial to a number of newspaper editors, airline heads and chambers of commerce, asking for comments. The response was excellent, resulting in definite conclusions that the public wants the airlines to be paid fairly for mail service. Both C. R. Smith, president of American Airlines, and Jack Frye, president of TWA, provided illuminating statistics showing the great increase in air mail carried in contrast to proportionately decreasing air mail pay. John Watkins, aviation editor of *The Sun* (Baltimore) wrote succinctly: "I should say that the American public would favor

having the airlines receive at least as much as the public pays for the use of the air mail, which certainly is not the case now."

Pro, Con and Otherwise

The "Doodlebug"

Washington, D. C.,
Oct. 3, 1938.

To the Editor:

I enjoyed your editorial, "Why Can't We Do It?" It looks like an honest admission that somebody else than the Americans are the cleverest people in the world, even if it does turn out that it is a German who demonstrates it.

But the point is, we can do it. We have done it. I saw it done, and thousands have seen it. I think the question should be, "Why don't we do it?"

You remember the "Doodlebug" built by an aeronautical engineer from Chicago whose name, I think, is McDonald? At the 1927 National Air Tour in Detroit several thousand people saw that ship, a low-wing, single seater monoplane, equipped with slots, flaps and whatnots, do some amazing things.

It landed in a 100-foot circle.

It took off inside a 100-foot circle. It stood virtually still in the air for 20 minutes with motor just ticking fast enough to maintain position against an 18 to 20 mile wind.

It did just about everything which enthusiastic airplane salesmen on the tour claimed that their ships would do.

We understood at the time that McDonald had used everybody's ideas, patents, schemes and ingenuities, in building the plane, and that, of course, he could not market it. But he did sell it to the NACA and flew it to Langley Field for delivery. Thereafter, it has soared out of human ken.

You look it up and you'll find it can play tag with the Storch any time. Then print, if you can get it, why such developments never trickle down to the dubs in aviation who need such a plane. Know who I mean?

Charles E. Planck,

Air-Track Manufacturing Corporation

Aero Book Shelf

EARLY BIRDS. By Alfred Instone. Published by Western Mail & Echo Ltd., Cardiff and London. London agents, Simpkin Marshall Ltd., Stationers' Hall Court, London, E. C. 4.

The title of this book might lead some to believe that it is a history of the Early Birds, the rather famous organization of early pilots in the U. S. But in truth it is a very fascinating and intimate history of the Instone Air Lines, Ltd., which operated between London and the Continent from 1919 to April 1, 1924. To Americans the most striking impression received from a reading will be that here is a history of one of the world's first commercial transport lines, one with an extraordinary safety record, which began and ended its operations two years before the first real commercial operations began in this country. The story is told by Alfred Instone, one of the three Instone brothers of the S. Instone & Co. shipping firm. The airline started when mail delivery was so slow after the war and the shipping firm had to supply its own mail service to expedite unloading and loading of its boats in France. Once the Air Ministry granted permission for air service, there was no stopping, and Instone Air Lines became a byword of air travel in those pioneering days. Not a life was lost in five years of operations, there was not a single claim suit, and only two forced landings were made outside of an aerodrome.

In these pages one gets the flavor of those early days of air transportation—which, incidentally, preceded similar days in this country by almost a decade—and reads of fares, passengers, operations, publicity efforts and all of the other essential details. Those interested in aviation history and those possessing an aeronautical library should most certainly secure this intimate and entertaining little volume. The setting is distinctly British, but the incidents have a familiar ring.

CANADIAN GEOGRAPHICAL JOURNAL, 172 Wellington St., Ottawa, Ont. The August issue (35c) contains a 30-page comprehensive review of the Canadian Aircraft Industry with 35 photographs and a directory of aircraft, aircraft engine, float and allied aero manufacturers and assembly plants.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

OF AMERICAN AVIATION, published semi-monthly at Harrisburg, Pennsylvania for October 1, 1938.

Before me, a Notary Public in and for the District of Columbia, personally appeared Lyle A. Brookover, who, having been duly sworn according to law, deposes and says that he is the business manager of AMERICAN AVIATION Magazine and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc. of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Aviation Associates, Inc., 104 Telegraph Building, Harrisburg, Pennsylvania; Editor, Wayne W. Parrish, 911 Earle Building, Washington, D. C.; Managing Editor, Robert H. Wood, 911 Earle Building, Washington, D. C.; Business Manager, Lyle A. Brookover, 911 Earle Building, Washington, D. C.

2. That the owners are: American Aviation Associates, Inc., 104 Telegraph Building, Harrisburg, Pennsylvania; Edward J. Stackpole, Jr., 104 Telegraph Building, Harrisburg, Pa.; Albert H. Stackpole, 104 Telegraph Building, Harrisburg, Pa.; Wayne W. Parrish, 911 Earle Building, Washington, D. C.; Frances Knight Parrish, 911 Earle Building, Washington, D. C.; Lyle A. Brookover, 911 Earle Building, Washington, D. C.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the two said paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signed) LYLE A. BROOKOVER.
Sworn to and subscribed before me this 15th day of September, 1938.

(Signed) Mildred G. Murnan,
Notary Public,
District of Columbia.
(My Commission Expires Nov. 15, 1942)

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ROBERT ALDRICH IS NAMED NYSAA HEAD

Rochester Airport Dedication Features Annual Convention of New York State Group



Aldrich

Rochester, N. Y., Sept. 25—Robert Aldrich, manager of Troy Airport, was elected president of the New York State Aviation Association at its annual convention held here during the past three days. Max J. Pollet, district sales manager for American Airlines at Buffalo, retiring president, was elected vice-president, and Col. George Vaughan, of the Casey Jones School of Aeronautics, was re-elected secretary and treasurer.

Interest in the convention was heightened by the dedication of Rochester's airport today with more than 30,000 persons attending. Dedication ceremonies were in charge of Harold S. W. McFarlin, commissioner of the department of commerce of Rochester, and Howard M. Shafer, airport manager. Col. Roscoe Turner was a feature attraction. Two autogiros were flown by Joseph Mirguet and Capt. Earl S. Eckels and Harold S. Brown gave a smoke flying demonstration. Lieut. Comdr. Russell Holderman and Dick Richards flew the Gannett Newspaper planes in exhibition flights. E. B. Count DeLano was the announcer.

Some 60 delegates attended the convention sessions with thirty airplanes flying into the city. The Toronto Flying Club was awarded the Powers Trophy for bringing in the largest delegation from out of town. Miss Jacqueline Cochran, Bendix winner, and Frank Gannett, newspaper publisher, were the guests of honor at the dinner dance at the Hotel Powers.

Association officials reported that during 1938 the organization had successfully opposed the Feld Bill for the establishment of a regulatory aviation commission, had attempted to codify all aviation laws of the state to make them conform with federal laws, had promoted air marking, had supported the passage of the new federal aviation law, and had cooperated with the state planning board on the publication of an airport manual.

Resolutions were adopted urging that the state police be adequately equipped and assisted in enforcing aviation laws in the state; urging continuation of the work marking program; resolving to make every effort to prevent laws restricting flying over lakes and other bodies of water and to attempt to repeal laws now existing; urging the state to aid financially the Elmira Soaring Association in staging its 10th annual meet in 1939; and urging the state to foster airport and landing strip facilities on state property.

Nat Duffy, Buffalo airport manager, suggested that if pilots were more careful in flying over churches and hospitals they would save themselves much grief from complaints. Colonel Roscoe Turner, 1938 Thompson Trophy winner, spoke on his general aviation activities. Earl Southey was voted thanks for staging a soaring demonstration for the delegates, and Art Lohman, of the Rochester Pilots Association, was master of ceremonies at the dinner.

Hal Snead Dies

Harold Snead, eastern division chief pilot for Transcontinental & Western Air, was found dead October 8 in his room at the Newark Athletic Club, Newark, N. J. Physicians said death was due to a heart attack. Snead was born at Dixon, Cal., 40 years ago. He received a degree of mining engineering from the University of California and also took an engineering course at the Sorbonne, Paris. He started flying for the Army in 1917 and was a flight instructor for 13 months during the world war. During the filming of Howard Hughes' motion picture, *Hell's Angels*, he was in charge of air combat formations. He is survived by Mrs. Snead.

JOHN WILLIAMS DAVIS, 51, nationally known chemist who was given credit for discovering the process for separating helium from natural gas, died at Petersburg, Va., Oct. 4. The discovery was made while he worked at the U. S. Bureau of Mines in Washington between 1919 and 1925. A captain in the Air Service Reserve, he was placed in charge of helium work for the air service during the war. He had taught electrical engineering at Harvard, Vanderbilt, Leland Stanford, and Illinois before the war, and had served at the Washington office of the air service.

Canadian Schedules Changed

Edmonton, Oct. 2—The Edmonton-Whitehorse and Vancouver-Whitehorse air mail services have been changed from a one-day to a two-day basis for the winter season. Planes on the

two Whitehorse runs meet and stop overnight at Fort St. John under provisions of winter schedules. The change was made necessary by the shortening of the daylight periods.

French Appoint New Air Attache to U. S.

Col. Rene P. G. Weiser on Oct. 1 succeeded Col. Norbert Champsaur as French air attache in Washington, D. C. Col. Champsaur, here for five years, will leave the United States soon to return to active military duty in France. The new attache entered military service in 1913, after graduating from the cavalry academy of Saumur. During the first year of the war he served in the dismounted cavalrymen and for the remainder of the war in the armored car section. After the Armistice he took part in the Syrian and Silesian military operations.

After several requests, he was transferred to the air force. In 1926, accompanied by his brother-in-law, Capt. Challe, he won the world straight-line distance record from Paris to Abbas, Persia, 3,229 miles, in 32 hours. The following year he flew from Constantinople to Paris, with a refueling stop at Vienna, in 10 hours winning the 2d prize at the Vincennes races. After completing a mission in Afghanistan in 1928, and a period of test piloting, Col. Weiser in 1932 took command of a pursuit group at Dijon and organized an aerobatic squadron which traveled all over Europe. In 1935 he was appointed commander of the 7th wing at Dijon, where he remained until appointed to his post in Washington.

AIRPORT SURVEY

(Continued from First Page)

be appointed to confer with Clinton M. Hester, administrator of the C.A.A., and the Authority's airport survey committee at protracted sessions over the next few weeks. During these conferences various organizations throughout the country interested in obtaining Federal aid for construction and maintenance of airports will appear to present their arguments.

This material then will be scrutinized by Richard C. Gazley, chief of the planning and development division of the CAA, and director of its airport survey; Maj. A. B. McMullen, chief of the airport section, who is in charge of collecting field data for the survey, and by Douglas L. Cullison, chief of the analysis and report staff, who has been assigned the task of analyzing and correlating field reports.

Stress Realistic Picture

One of the most difficult problems will be the attempt to justify airport construction in economic terms, it was felt. Because of the rapidity of growth of aviation, the inability to forecast the exact trends which will be taken in flying and technical equipment, and the lack of statistics due to the youth of the industry, conferees said all care must be taken to paint the practical picture which aviation deserves, and which the House and Senate will insist upon. Utmost cooperation with the survey committee by all interested groups was stressed as the only method to assure fair treatment for American flying.

One section of the survey, Mr. Hester has revealed, will deal with a survey of existing facilities, and what it will cost to perfect them. Another section will analyze those costs in relation to the services they may render. A special section will study the problem of airport size, both in relation to their nearness to the centers they serve and

in relation to the size, landing speed and other requirements of the planes, present and future, which may be expected economically to use them.

Since it would be impossible to study all 2300 airports and fields in the country, 800 typical fields have been selected for special research. Included are all of the approximately 200 scheduled airline stops. In addition, the survey will make an inclusive study of all 500 airports and landing fields in 11 southeastern states—North Carolina, South Carolina, Georgia, Florida, Tennessee, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma and Texas. It is felt there areas represent all types of terrain, and weather conditions will favor survey activities this winter.

As a check for the application of data thus developed, the survey will next include a detailed study of 100 typical small fields in other parts of the country.

Government Data Available

Most of the detailed data to be sought, Mr. Hester said, already exists in the Authority's own files and those of the ICC, Census Bureau, Post Office, the War and Navy Departments, the records of the aviation industry and its associations, and in states and municipalities. The W.P.A. also will aid where help is needed.

Groups represented at the Oct. 4 meeting included the airlines, New Jersey State Aviation Committee, American Association of Airport Executives, American Conference of Mayors, Cleveland Airport, National Guard, Private Fliers Association, Army Air Corps, Navy Bureau of Aeronautics, the N.A.A., N.A.S.A.O., Air Line Pilots Association, U. S. Maritime Commission, Central Statistical Board, Air Transport Association, Aeronautical Chamber of Commerce, Baltimore Municipal Airport, Interstate Airways Committee, Bureau of Census, Baltimore Association of Commerce, Interstate Commerce Commission, Natural Resources Committee.

Civilian Air Force

Sept. 21, 1938.

To the Editor:

I have been fighting since 1934 for a U. S. Civilian Air Corps, its purpose to be a reserve defense for our now splendid air units. Also the construction of five modern military airports along each coast, each port about 450 miles from the next. There would be two others on our Gulf and three on the Canadian border. These airports would be operated with a peace time quota of men in conjunction with the Army Air Corps headquarters, now located at Belleville, Ill.

In the event of an emergency the members of the U. S. Civilian Air Corps would be summoned in the same manner as are members of any unit of the government and sent first where they would be needed most. Others would be distributed to other coast defense airports and held in readiness to move up in place of the squadron that would be sent out to meet any invaders.

Such an addition to our air force would place us far ahead of any nation in regard to national defense, a guaranty of lasting peace that is so sorely needed.

U. S. Civilian Air Corps: Its members to be composed of student pilots; private, transport, limited commercial and commercial pilots, as well as mechanics, both student and licensed; those actively engaged in commercial flying and those who fly for sport (voluntary enlistment).

Membership Requirements: Males between 18 and 45, who must submit to medical examination. Enlistment period, three years, with a reserve assignment for seven years upon being discharged. Flight instruction and actual flying time (two hour periods), one day each week at government expense. Airports to be designated by the Army Air Corps (or Civil Aeronautics Authority) which will furnish planes and instructors. Members are subject to call on 12 hours notice. Flights: annual two week cross country. Free flight training would be the only compensation, unless members were called for actual service. Members would be given the same consideration as other reserve pilots (Army or National Guard) in the event of injuries or death while flying during training periods.

Such a Civilian Air Corps is not only a much needed addition to our air force, but would be economical, because its members live at home.

Yours for national defense.

Fred Clasen,
3608 Delor St.,
St. Louis, Mo.
(Student pilot)

Milwaukee Port Ceremony

Milwaukee, Oct. 2—The cornerstone for a new \$140,000 administration building at Milwaukee County Airport was laid today. Improvements are under way on all four runways at the field.

Profs Fly to Classes

Carlsbad, N. M., Sept. 26—America's first "flying university" has been inaugurated by the University of New Mexico in an effort to supply the demand for teachers for adult education in Roswell, Hobbs, Clovis and Carlsbad. Under the plan, originated by Dr. J. T. Reid of the University's extension service, instructors leave Albuquerque by plane for each of the four cities Monday evening, hold classes, and are picked up Tuesday morning in time to return by air to their regular duties.

AIRLINE TRAFFIC

First Applications for New Air Routes Announced; 2 New Lines

Eastern Seeks Ambitious Expansion Program to Kansas City and Other Points; Continental Asks Extensions to San Antonio and Kansas City

The first group of applications for certificates of public convenience and necessity for existing and new routes were announced Oct. 5 by the Civil Aeronautics Authority, and others were announced as they were filed in Washington. The first group represent only a few of those applications contemplated but are the first to be filed according to the regulations and procedures recently formulated.

Two new companies seek routes, Trans-Southern Airlines, Inc., of Oklahoma City, and Missouri Central Airlines, Inc., of St. Louis.

Eastern Air Lines seeks five new routes, proposing to extend as far west as Kansas City. Continental Air Lines has filed for four new routes including one to Kansas City and another to Wichita. Mid-Continent asks two new routes, while National Airlines, Inc., seeks an extension in Florida.

Applications include requests for certificates by existing airlines for their present routes as well as for new services desired. Each application has been assigned a docket number. A large number of applications is expected in the near future. Of the major lines, only Eastern and United and TWA had filed up to Oct. 11.

The complete list of applications follows:

Following is a complete list of applications filed with the CAA up to the close of Oct. 10. Docket number follows the name of each company:

Braniff Airways, Inc. (1)

Existing: Chicago and Dallas via Burlington, Ia., Kansas City, Mo., Wichita, Ponca City, Okla., Oklahoma City, and Fort Worth. Filed Aug. 23.
New: Memphis to Houston, via Shreveport, La. Filed Aug. 23.
Existing: Amarillo, Tex., and Brownsville, Tex., via Wichita Falls, Fort Worth, Dallas, Waco, Austin, Houston, Galveston, San Antonio, and Corpus Christi. Filed Aug. 23.

Continental Air Lines, Inc. (2)

New: Wichita and Pueblo via Hutchinson, Dodge City and Garden City, Kan., and La Junta, Col. Filed Aug. 23.

New: El Paso, Tex., and San Antonio, via Marfa, Alpine, and Uvalde, Tex., extending route from Denver to El Paso. Filed Aug. 23.

New: Pueblo, Col., and El Paso, via Delhart, Amarillo, and Lubbock, Tex., and Roswell, Hobbs and Carlsbad, N. M. Filed Aug. 23.

New: Denver and Kansas City, Mo., via Salina and Topeka, Kan. Filed Aug. 23.

Mid-Continent Airlines, Inc. (3)

New: Des Moines and St. Louis. Filed Aug. 23.

New: Kansas City, Mo., and Minneapolis, via Des Moines. Filed Aug. 23.

Chicago & Southern Air Lines, Inc. (4)

New: Memphis to Houston, via Pine Bluff, Ark., and Shreveport, La. Filed Aug. 26.

National Airlines, Inc. (5)

New: Jacksonville and Lakeland, Fla., via Gainesville and Ocala. Filed Sept. 6.

Existing: Jacksonville and New Orleans, via Tallahassee, Marianna and Pensacola, Fla., Mobile, Ala., and Gulfport, Miss. Filed Sept. 6.

Existing: Daytona Beach and Miami, via Orlando, Lakeland, Tampa, St. Petersburg, Sarasota, and Ft. Myers, Fla. Filed Sept. 6.

Pan American Airways Co. (6)

Existing: San Francisco and Hong Kong, China, via Honolulu, Midway Island, Wake Island, Guam, Manila, and Macao. Filed Sept. 16.

New: Fair and reasonable rates of compensation, San Francisco and Hong Kong. Filed Oct. 4.

Marquette Airlines, Inc. (7)

New: To enter lease with American Airlines, Inc. Filed Sept. 22.

New: Amendment No. 1 to application. Filed Oct. 1.

Existing: St. Louis via Greenville, Ill., Vincennes, Ind., Seymour, Ind., to Cincinnati, thence Dayton, Findlay and Toledo, O., to Detroit and return.

Delta Air Corp. (8)

Existing: Charleston, S. C., to Columbia, S. C., Augusta, Ga., Atlanta, Birmingham, Meridian, Miss., Jackson, Miss., Monroe, La., Shreveport, La., Tyler, Tex., Dallas and Fort Worth. Filed Sept. 23.

Eastern Air Lines, Inc. (9)

New: Jacksonville, Tampa, and Miami, Florida. Filed Sept. 28.

New: St. Louis, Evansville, Ind., Louisville, and Washington, D. C. Filed Sept. 28.

New: Houston, Tex., Shreveport, La., and Memphis. Filed Sept. 28.

New: Memphis, Springfield, Mo., and Kansas City, Mo. Filed Sept. 28.

New: Nashville, Tenn., Evansville, Ind., and St. Louis. Filed Sept. 28.

Existing: Houston to Brownsville, via Corpus Christi and Houston to San Antonio, Tex. Filed Sept. 29.

Existing: Tampa to Tallahassee, Fla., and from Tallahassee to Memphis, via Dothan, Montgomery, Birmingham, and Florence-Sheffield-Tusculum, Ala., and from Tallahassee to Atlanta, via Albany, Ga. Filed Sept. 29.

Pacific Alaska Airways, Inc. (10)

Existing: Fairbanks, Juneau, Alaska, via Whitehorse, Yukon Territory, with flag stops at Tanana Crossing, Alaska, and Burwash Landing, Yukon Territory. All PAA routes here listed, filed Sept. 28.

Existing: Fairbanks, Alaska, and Nome, Alaska, with flag stops at Ruby, Tanana, Nulato, and Golovin, Alaska.

Existing: Fairbanks and Bethel, Alaska, with flag stops at McGrath, Flat, Lake Minchymina, Medfra, Tacotna, Ophir, Stony River, Sleightmure, Crooked Creek, Napalmut, Aliak, Kalskag, and Akialak, Alaska.

Missouri Central Airlines, Inc. (11)

New: St. Louis, Evansville, Ind., Louisville, Ky., Frankfort, Ky., Lexington, Ky., and Washington, D. C. Filed Sept. 28.

New: Birmingham, Nashville, Evansville and Terre Haute, Ind., and Chicago, and between Nashville, Paducah, Ky., and St. Louis. Filed Sept. 28.

New: Memphis, Springfield, Mo., and Kansas City. Filed Sept. 28.

New: Houston, Tex., Shreveport, La., Memphis, Evansville, Ind., and Louisville, Ky. Filed Sept. 28.

Trans-Southern Airlines, Inc. (12)

New: Amarillo, Tex., and Memphis, via Oklahoma City. Filed Aug. 30.

Pan American Airways, Inc. (14)

New: Seattle and Juneau sector of Seattle-Fairbanks-Nome air transport route via Ketchikan, Alaska. Filed Sept. 28.

A. Gami (15)

Application, interlocking relationships. Filed Sept. 14.

United Air Lines Transport Corp. (16)

Existing: Newark to Oakland.

Existing: Seattle to San Diego.

Existing: Salt Lake City via Boise, Pendleton and Portland to Seattle, and Pendleton via Walla Walla to Spokane. Existing: Denver to Cheyenne. Existing: Seattle to Vancouver, B. C. Existing: Cleveland via Camden to Newark and Camden to Allentown.

Transcontinental & Western Air, Inc. (17)

Existing: Newark to Los Angeles. Existing: Newark, San Francisco, Oakland.

New: Newark and Phoenix, Ariz.

New: Phoenix, San Francisco and Oakland.

New: Phoenix and Los Angeles.

Existing: Chicago and Kansas City, Mo. All filed Oct. 10.

July Mail Statement Shows Mileage Gain

The Post Office Department Oct. 5 made public the preliminary statistical report for air mail for the month of July as follows (figures in parentheses represent June totals):

Route miles, 34,003 (33,290); miles of service performed, 4,425,054 (4,297,460); pound miles performed, 1,199,405,168 (1,254,696,391); payments to contractors certified by the department, \$1,311,241.30 (\$1,290,003.10).

Air Routes in Americas Total 141,000 Miles

Air services in the western hemisphere operate a total route mileage of 141,000 miles, or 44% of the combined lengths of all the world's scheduled air services, according to Irving H. Taylor, chief of the automotive-aeronautics trade division of the Department of Commerce. This total, Mr. Taylor reported Oct. 6, compares with some 30,000 miles of scheduled services scattered throughout the Americas in 1928, and is equal to the world's total mileage 10 years ago.

The 85 airlines in the hemisphere offer 350 scheduled air services, employ about 825 planes which fly an average of 249,000 miles a day or 91,000,000 miles a year, it was reported. They are expected to carry 1,900,000 passengers this year, and mail volume should reach 25,000,000-lbs. Air express is expected to total 20,000,000-lbs, in 1938, Mr. Taylor asserted.

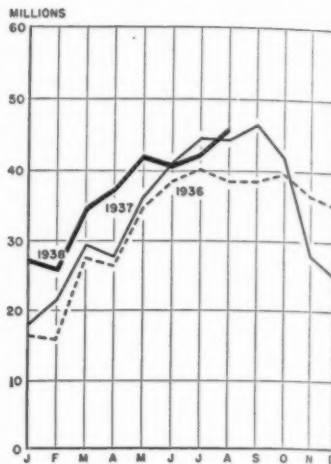
Discounts on Return Trips

Discounts on all return trips were announced by Pan American Airways, effective Oct. 1. "Henceforth, any person who has traveled anywhere on Pan American Airways with a ticket issued at the normal one-way adult fare can buy a ticket back to the place from which he started at a discount of 10% from the one way fare," it was said. The tourist may choose any Pan American route he wishes for the return. The Bermuda service, operated with Imperial Airways, does not offer the return reduction, but instead has announced transferable commutation tickets good for 20 one-way passages at a discount of 28% under regular one-way rates. Each ticket sells for \$1,000, and is good for a year.

Supplements Passenger Service

Northwest Airlines now is carrying passengers on the Fargo-Winnipeg section of trips 3-21 from Chicago, and 6-22 to Chicago. Mail and express only were carried on these flights formerly.

REVENUE PASSENGER MILES FLOWN



August Passenger-Miles 2nd Highest in History

Revenue passenger miles flown by air lines which are members of the Air Transport Association of America amounted during August to 46,073,161, or a gain of 9% over the previous month and of 2.7% over August of 1937. Only in one previous month in airline history has the total been higher. In September, 1937, the all time high was 47,155,926.

"From all indications, the current month's figures (September) will exceed that of September, 1937, and with National Air Travel Week starting Oct. 1, it is indicated that the October figure will also be high in comparison with other months," the ATA reported Sept. 29.

Comparative revenue passenger mile totals follow for 16 domestic airlines, flying over 99% of scheduled mileage in the U. S.:

	1937	1938	% Gain
Jan.	18,006,557	27,110,800	50
Feb.	21,824,730	26,155,235	19.8
Mar.	29,530,482	34,565,609	17.1
Apr.	27,849,296	37,929,046	36.2
May	36,203,069	42,100,250	16.3
June	41,184,149	40,283,808	2.2*
July	44,147,193	42,208,362	4.4*
Aug.	44,843,347	46,073,161	2.7

1st 8 mos. 263,588,823 296,426,271 12.6
* Indicates decrease.

Airline Feeder Meeting

Albany, N. Y., Sept. 28—A meeting was held today by Mayor Thacher, John F. Lawler, Airlines Feeder System traffic representative, and Joseph A. Fitzgerald, local airport superintendent, to consider plans for service from Springfield, Mass., to Albany. The company already operates weekly planes from Newark to Bridgeport, New Haven, Hartford, and Springfield. The line expects to file a request for the extension with the CAA.

Postpone Service

Airline Feeder System has postponed inauguration of its flights from New York to Atlantic City, Camden, Lancaster, Harrisburg, Reading, Allentown and return to New York.

Directory of U. S. and Canadian Airlines

Published in Pocket-Size Handbook

The Only Complete Directory of Officials and Personnel of the Air Transport Industry

Corrected up to July 15, 1938

AMERICAN AVIATION

50c Each

Earle Bldg., Washington, D. C.

HERLIHY TO HEAD UNITED OPERATIONS

Schroeder to Supervise Safety Policies; Pfennig and S. V. Hall Named Section Managers

J. A. Herlihy has been named vice-president in charge of operations of United Air Lines, according to announcement by W. A. Patterson, president.



Herlihy

will correlate them with the new Civil Aeronautics Authority.

Mr. Patterson also announced the appointment of R. E. Pfennig,



Pfennig

former director of passenger service, and prior to that, assistant operations superintendent, as manager of operations of the New York-Chicago-Denver section, and the appointment of Seeley V. Hall,

for 12 years active in supervisory capacities in United's operations department, as manager of operations for the Denver-Pacific Coast territory.

The moves are part of a general reorganization and tightening up contemplated for some time, and realign the four divisions of the company into two.

Herlihy has been director of engineering for the past year. He has a 14-year record of flying, engineering and operating experience in air transportation. After training at Massachusetts Institute of Technology and in the naval air service, he acted as chief engineer for another transcontinental airline when its coast-to-coast route was being laid out. He started with United Air Lines as a pilot in 1930 on the Chicago-New York division. Recently he has been technical contact executive in the development and construction of the four-engine Douglas DC-4.

Other personnel shifts:

R. A. Reed, who has been central division manager at Cheyenne becomes manager of the Cheyenne station. C. M. Wall, who has been Cheyenne station manager, will go to Denver as station manager. Paul Reed, G. E. Delminger, and Al Dwyer, dispatchers, are transferred from Cheyenne to Denver. Pat Gallagher, dispatcher at Cheyenne, goes to Newark. J. P. Odell, Cheyenne dispatch clerk, goes to Denver as radio operator. R. W. Logan, Cheyenne meteorologist, is transferred to Denver. C. C. Copplin, Jr., who has been chief pilot Cheyenne-Chicago, will go to Oakland as superintendent of flying. O. W. Swanberg moves from Salt Lake City to be Denver dispatcher.

Wolfe Puts on Party

Thomas Wolfe, vice president of Western Air Express, on Oct. 15 will be host to prominent aviation notables and Wyoming leaders at a "branding" party at his giant Robbers' Roost Ranch near Medicine Bow, Wyo. The ranch derives its name from several Union Pacific robberies which were committed nearby in pioneer days. A modern airport adjoins the ranch house.

Island Service Discontinued

Mayflower Airlines has suspended service from Boston to Cape Cod and Nantucket until spring.

Promoted By TWA



Paul E. Richter



Larry Fritz

Airline Pilots Draw Up Carrier Contracts

Delayed for two years because of the pressure of legislative work leading up to enactment of the Civil Aeronautics Act of 1938, the Air Line Pilots Association has turned its attention to drawing up and submitting employment contracts to airline companies. First two contracts have been submitted to American Airlines and Braniff Airways, with negotiations scheduled to start with Pan American-Grace.

The contracts are being drawn up under Title II of the Railway Labor Act which was signed April 10, 1936. Under this act it is the duty of all air carriers, their officers, agents and employees to exert every reasonable effort to make and maintain agreements as to rates of pay, rules and working conditions, and to settle all disputes, in accordance with the provisions of the act. The law is designed to avoid any interruption of commerce or to operation of any carrier.

Since the airlines have maintained a high wage scale for all first pilots, no material changes are expected under the new contracts except for co-pilot pay. Vital issues in the negotiations are at a minimum.

Sacramento Service Reopens

United Air Lines on Oct. 1 reopened passenger and mail service to Sacramento, Cal., after a 60-day cessation due to runway reconstruction.

American Signs for World's Largest Air Operations Base at North Beach

Consummation of a long-term lease for three hangars at North Beach Airport involving 300,000 square feet of space was reported Oct. 6 by American Airlines and the City of New York. When construction work is completed, American will maintain the largest airline operating base in the world at the new airport in New York.

TWA is seeking a lease for two hangars involving 200,000 square feet, and United Air Lines is seeking a lease for at least one hangar.

The American deal was handled entirely by O. M. "Red" Mosier, vice-president, and represents the largest single airline base project ever undertaken in this country. American plans to center virtually all of its main operation facilities at North Beach, with

Western Air Express Appoints James Rowe Publicity Chief

Los Angeles, Oct. 5.—James F. Rowe, formerly with the publicity department of RKO Radio Studios in Hollywood, has been appointed director of public relations for Western Air Express. A graduate of the University of California here, and Washington State College, Rowe for the last 10 years has been with *San Francisco Examiner*, *Los Angeles Examiner* and *The Herald-Express*.

Would Join EAL Board

A. Gami has filed an application with the CAA for approval of his projected appointment to the board of directors of Eastern Air Lines. He is a director of Pan American Airways, a director of Grace Lines, Inc., (steamships), and a director and first vice president of W. R. Grace & Co., engaged in foreign trade. The latter company is the owner of all capital stock of Pan American-Grace Airways, and owner of 10,000 shares of capital stock of Eastern Air Lines, Inc. Until Aug. 22, 1938, section 7 of the Air Mail Act of 1934, as amended, prevented Eastern as an air mail contractor from having as a director one who also was a director, officer, or stockholder of any corporation engaged in any phase of the aviation industry, states the petition. These provisions are superseded by section 409 of the Civil Aeronautics Act of 1938, it asserts.

RICHTER PROMOTED TO TWA EXEC. V P

John B. Walker Given Special Assignment As Conroy Takes Over Traffic

A number of sweeping re-organization changes were announced October 1 by Jack Frye, president of Transcontinental & Western Air, Inc.

Paul E. Richter, formerly vice president in charge of operations, was named executive vice president of the company in charge of operations, sales and accounting departments.

Larry G. Fritz, first commercial air mail pilot in the country and formerly superintendent of operations for the Eastern region, has been made vice president in charge of operations.

John B. Walker, vice president in charge of traffic, has been assigned to the president's office for special assignments and was reported to have resigned effective January 1.

Vincent P. Conroy, who recently became sales manager of the line, assumes general charge of the traffic department.

J. C. Franklin, director of communications and well known radio expert, has been made assistant to the president at the Kansas City base and Howard K. Morgan, assistant to Franklin, has become director of communications.

Clarence Fleming will continue his duties as mail traffic manager and assistant to the vice president in charge of traffic, although for the present there is no holder of that title. Mr. Walker retains his title as vice president.

The reorganization was decided upon at a meeting of the board of directors in New York a few days previously.

According to the announcement, Richter will report directly to the president and will be in direct charge of internal affairs of the airline and will be responsible for the administration and coordination of the operating, sales and accounting departments. Richter, Jack Frye and W. A. Hamilton, superintendent of maintenance, entered the aviation industry together with the formation of the Aero Company of California in February, 1926.

Larry Fritz is well known for his early association with Henry Ford. His aviation experience dates back to 1917 when he trained for Army air service in Memphis. In 1924 he joined William B. Stout, Detroit aircraft designer, and helped him build the first Stout transport, forerunner of the tri-motored Ford. This was the first Liberty motor-powered all-metal transport. He was with Ford Airways as test pilot and flew the first private contract air mail in the country from Detroit to Cleveland on Feb. 15, 1926, in a single-engine Ford monoplane. He joined Maddux Airlines in June, 1927, which later became part of TWA.

Pettigrew to CAA

Bruce C. Pettigrew, first officer with American Airlines, has resigned to join the CAA as an inspector. He has been stationed in Chicago, flying between that city and Newark. He went to American three years ago, and at his resignation had 3100 hours.

EAL Promotes Armstrong

Eastern Air Lines announces the appointment of Thomas F. Armstrong as secretary-treasurer, and Warren Moore as assistant secretary-treasurer. Armstrong was formerly assistant treasurer.

TRAVEL WEEK ENDS; BAGGAGE LIMIT UP

Thousands Attend Special Events
Held in 200 Cities Throughout
U. S.; 40-lb. Luggage
Permit Stays

National Air Travel Week, celebrating 10 years of progress in America's scheduled air transportation industry, closed October 9 after eight days of celebrations, educational lectures, special exhibit flights, air shows, exhibits of aircraft and accessories, airport inspections, and sightseeing flights at reduced rates.

One of the major lasting benefits is the gift of five extra pounds in baggage allowance for every U. S. traveler on any of the 17 airlines. The maximum weight which can be carried free on a passenger ticket was raised to 40-lbs. on October 1. This one reform is expected to eradicate a common complaint of air tourists.

The week opened officially with an aerial parade of 17 transports of Pan American, TWA, Eastern, United and American, which carried about 300 invited guests over New York. Included in the passenger list were Edward J. Noble, Robert F. Hinckley and Oswald Ryan, members of the CAA; Clinton M. Hester, administrator, Col. Sumpter Smith and Tom Hardin of the Air Safety Board; Paul J. Frizzell, secretary of the Authority; Charles Stuart Guthrie, general counsel, and C. B. Allen, director of liaison and information, all of whom were guests of Mayor LaGuardia in the Bermuda Clipper. Similar special flights were scheduled in Chicago, Seattle, Los Angeles, San Francisco, New Orleans and Miami. Capt. E. V. Rickenbacker, president of Eastern, was toastmaster at a luncheon in New York October 4. Speakers and guests included prominent aviation figures.

It was a special celebration in Dallas, Wichita Falls and Amarillo when Braniff Airways opened its run between the two cities. Eastern Air Lines opened schedules connecting Atlanta with Tallahassee and Tampa.

Los Angeles put on a flight of eight airliners lead by the Douglas DC-4, and the five major airlines held open house at Union Air Terminal and Grand Central Air Terminal, inviting visitors to go through the ships.

At St. Louis more than 70 types of planes—transport, commercial, private and military—were on display at Lambert-St. Louis Municipal Airport. Parks Air College at East St. Louis entertained visitors. Escorted tours through the operations bases of the U. S. Navy Reserve Unit and the 35th Division Aviation unit, of the Missouri National Guard were offered. The factory of the St. Louis Airplane Division of Curtiss-Wright invited inspection of the mock-up of its new transport now under construction.

Fort Worth Boy Scouts escorted visitors around municipal airport, and other scouts filled positions of various airport officials for a day. Scouts also acted as guides at Jacksonville Municipal Airport, where all locally based planes were displayed.

Ceremonies or participation of some sort were announced by every one of the 200 cities in this country on scheduled airline routes.

Appoint at Great Falls

Jack Smith has been appointed traffic manager for Western Air Express and Inland Air Lines at Great Falls, Mont. Smith, a graduate of Parks Air College and a native of Butte, Mont., will handle traffic and publicity problems for the two lines. WAE's Montana traffic headquarters are at Butte, under Art Kelly, d.t.m.

Writer Covers 20,000 Miles in Travel Week

Alice Rogers Hager, aviation writer for the North American Newspaper Alliance, set out from Newark at midnight Oct. 1 at the beginning of National Air Travel Week on an 8-day continuous trip which took her over 20,000 miles of the nation's major airlines. She visited 67 cities, most of which had ceremonies in progress upon her arrival. Her ticket, 10-ft. long, took her on two round trips coast to coast, from Canada to Cuba, back to the states—all in eight days.



Mrs. Hager

Averaging more than 3,000 miles a day, Mrs. Hager had all of her meals aboard airliners, and slept each night in a sky sleeper, except while waiting at Miami to board a Pan American clipper for Havana. At all stops, Mrs. Hager stressed in interviews and radio broadcasts the comfort, convenience and speed of U. S. air transport facilities.

Missouri Central Formed

Atlanta, Sept. 28—Missouri Central Air Lines, Inc., today was granted a charter of incorporation in Fulton County superior court. Incorporators are John K. Ottley, Jr., Hunter Bell, and E. Smythe Gambrell. Capital stock is listed at \$1,000, with right to increase to \$500,000. No operating plans were announced.

S. F. Cuts Port Fee In Oakland Feud

San Francisco, Oct. 1—A 30% reduction in fees levied against commercial planes at Mills (Municipal) Field has been ordered by the Public Utilities Commission in an attempt to divert more air transport traffic from Oakland. United and TWA have been landing only a comparatively few planes there. Utilities Manager E. G. Cahill estimated United and TWA would save about \$8,000 and \$1,750 annually, respectively. Local rates have been the highest in the country, it was charged, mainly because airlines paid on a full-load basis at each landing, regardless of percentage of seat occupancy. It is also known that Cahill is trying desperately to induce United to move its shops here from Cheyenne, in the belief that the latter city will become less important as cruising range is extended.

Reveals Japanese Plans

Seattle, Oct. 3—Plans for an ambitious system of airlines under Japanese management were revealed here last night by a syndicate of Japanese experts led by Vice Admiral Kenji Macebara, retired, who is also vice-president of the Manchuria Airplane Manufacturing Co. of Mukden. The admiral's statement included mention of routes from Hsingking, Manchuria, north to Siberia, connecting with Europe; east to the American continent through Japan, south to the South Seas and west to Central Asia through China.

Half Fare Sales Gain

Passenger revenue from half fare tickets on American Airlines during August was almost double that of July, the month the new rates were inaugurated. More than 350 round trip and one way tickets for children between 2 and 12 were sold in August.

Steady Customer



Col. Edgar S. Correll, president of the Air Transport Association, uses all of the nation's airlines on his business trips. He is pictured here as he began a flight on a TWA Skylub plane from Chicago to New York.

Want Airline Across Gulf

New Orleans, Sept. 30—A direct airline from New Orleans across the Gulf of Mexico to Merida, Yucatan, is being boosted by various local civic organizations. Edward D. Rapier, chairman of the aviation committee of the Association of Commerce, states that the C.A.A. will be asked to permit establishment of such a route.

First Officer Joshua T. Winstead, Jr., of American Airlines, has resigned from commercial airline flight duty to accept a commission in the U. S. Army Air Corps. He joined AA in 1936 as a flight officer and has been flying between Chicago and Newark.

TWA Starts Its Own 'University' for All Employees

Transcontinental & Western Air has initiated what it believes to be the first comprehensive schooling system on any domestic airline. It is the plan to reach all of the line's 1,300 employees with pertinent "courses" of instruction in the various branches of airline activity.

"With five complete schools established at the main TWA base at Kansas City, together with six special correspondence courses in operation between the midwestern 'university' and the company's bases and offices throughout the United States, the department is under the direction of a corps of experts on every phase of airline operation," it is announced.

John W. Vale, Jr., educational director, is in charge both of basic courses on general aviation subjects required for the entire 'student body,' and the specialized courses.

Passenger service, personnel and maintenance schools are run on regular schedules, while correspondence courses are now being conducted for transportation agents, traffic representatives, passenger agents, ticket and reservation clerks, technical personnel, hostesses, and clerical workers. The pilot school, of course, has been in operation several years. Elective courses in more highly specialized subjects are available to TWA employees showing special aptitude, the company says.

Victoria Representative

United Air Lines has appointed E. F. Marshall, head of Marshall's Travel Service, as its representative at Victoria, B. C.

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of
90,000,000 Customers



On the routes of The Great Silver Fleet is a vast market for food, clothing, drugs, and luxuries. Modern methods of merchandising with their small inventories and frequent reorders, demand a new type of coverage. Let Eastern Air Lines take you to these vast markets in a few short hours of comfortable travel—for only by flying can you take advantage of the merchandising opportunities occurring and reoccurring in everyone of these southern cities.

EASTERN Air Lines

BUSINESS AND FINANCE

All American Orders Stinsons for New Feeder Air Mail Service

All-American Aviation, Inc., which was the only bidder for two experimental air mail routes advertised by the Post Office Department Sept. 15, has ordered a fleet of Stinson Reliants, powered with 260-hp. Lycoming motors. Dr. L. S. Adams, vice-president of All-American and inventor of the special pickup device to be used on each plane, told AMERICAN AVIATION six Stinsons will be used. Service will start shortly.

"This air mail pickup device offers the most practical solution for the problem of providing air mail service to every community," Dr. Adams said. "It resembles the device used on railway cars which permits high speed trains to discharge and pick up mail without stopping. Small towns are entitled to fast mail service just as much as cities. Too, it would be impossible to operate high speed trains if they were obliged to stop at every town en route to discharge and take on mail. It was the development of the railway mail pickup system that brought first class mail service to every city in the country.

"Today only those cities equipped with costly airports receive air mail service. Our device makes it possible to service all communities. On the new air mail routes, some of our pickups will be made from the centers of cities—others from hilltops."

Mail to be snared is attached to a rope strung across the tops of two posts 40-ft. apart and 20-ft. high. The plane flies low and a grappling hook, trailing 65-ft. from the plane, snatches the rope to which the sack is attached. A winch operated from the plane then draws the mail into the cabin. Objects weighing more than 100-lbs. have been picked up by Stinson planes traveling at speeds of 120-mph. when the contact was made, the Stinson Aircraft Division of Aviation Manufacturing Corp. reports. To compensate for the terrific velocity of picking up heavy loads at high speed, a powerful shock absorbing mechanism is built into the plane.

In experimental work, Stinsons have caught mail from ships at sea and from rooftops, and objects such as electric light bulbs and bottled goods have been picked up and unloaded in flight without damage. Modifications have been made in the planes to carry the pickup and delivery equipment.

The Post Office has authorized early inauguration of service on one route from Philadelphia to Pittsburgh, via 24 intermediate cities, and from Pittsburgh to Clarksburg and Huntingdon, W. Va., and return via 28 intermediate cities. (AMERICAN AVIATION, Oct. 1.)

Lease at Cheyenne

Cheyenne, Wyo., Oct. 4—The Mountain Airways Corp., managed by Fred Wahl has leased from the Plains Airways Co. 6,000-sq. ft. of ground south of the Cheyenne Flying Service at the Cheyenne municipal airport, the lease to be valid until Jan. 15, 1943.

Frost Leaves Consair

San Diego, Cal., Sept. 29—Jack Frost, assistant to the president at Consolidated Aircraft Corp., resigned yesterday. He had been with Maj. Reuben H. Fleet, Consolidated president, since the company came here from Buffalo, N. Y.

FAIRCHILD RESIGNS

E. R. Robinson also Leaves Canadian Aircraft Subsidiary

Montreal, Sept. 29—The resignation of Sherman M. Fairchild and E. R. Robinson, both of New York, from the board of directors of Fairchild Aircraft, Ltd., was confirmed at the annual meeting of stockholders here.

To fill the vacancies, and that occasioned by the death of E. G. Jackson, the board elected Philip S. Gregory, assistant general manager of Shawinigan Water & Power Co.; Leo G. Ryan, president of Mallinckrodt Chemical Works, and W. Taylor Bailey, vice-president of Dominion Bridge.

"As the company is involved in work for the Dominion government and may be eventually carrying out work for the British Air Ministry, these gentlemen offered their resignations so that the company would be under full direction of British subjects," the board stated in announcing the retirement of Fairchild and Robinson.

Cole Leaves Douglas for EAL Maintenance

Santa Monica, Cal., Sept. 26—C. C. Cole, service manager of Douglas Aircraft Co. and one of the best known maintenance engineers in aviation, yesterday announced his resignation and the acceptance of a post with Eastern Air Lines as superintendent of maintenance, with headquarters at Miami. He will join Eastern Oct. 1.

After nine years in the Army Air Corps, Cole took charge of the newly organized Western Air Express service, then after five years moved to United Air Lines. Three years later he went to South America as maintenance engineer for Pan American-Grace at Lima, Peru.

Boylan to New York

John J. Boylan, formerly district sales manager of Railway Express Agency at Kansas City, Mo., has been appointed assistant to the general sales manager in New York. He will conduct a series of industrial surveys and engage in sales promotion generally.

Selects Eastern Sales Rep

Glendale, Cal., Sept. 26—Aircraft Accessories Corp., manufacturers of hydraulic actuating systems, announces appointment as eastern sales manager of Henry Reisner, formerly of Fairchild Aircraft Corp. Ted Lynn is president, W. J. Hosmer is vice-president, Rodney B. Campbell is chief engineer, and Ed Burke is sales manager.

Grads Placed in Sweden

Los Angeles, Sept. 29—Seven young graduates of the Curtiss-Wright Technical Institute left by plane for New York last night en route to Sweden where they will help to design and build aircraft for the Swedish government. All are designated as junior aeronautical engineers. One is a native of Australia and another is a Canadian.

AEROMARINE INSTRUMENT CO. has announced removal of its headquarters from New York to 432 Fairfield Ave., Stamford, Conn., as a result of increasing business and need for additional space.

Taylor Named Chief of Commerce Division

Irving H. Taylor, well known in U. S. and foreign automotive and aeronautic circles, has been appointed chief of the automotive trade division of the Bureau of Foreign and Domestic Commerce, it was announced by the Department of Commerce Oct. 6.



Taylor

Educated at Detroit University, Irving School at Tarrytown, N. Y., and Princeton, Mr. Taylor entered the Bureau in 1925, and was assigned to the automotive division. He resigned in June, 1928, to join the export department of an American manufacturer of automotive products, and rejoined the Bureau in August, 1930, as trade commissioner at the Milan, Italy, office. Later he served at the Bureau's Vienna office before being appointed active chief of the automotive-aeronautics division.

Lloyd Stearman to Make Feeder Survey for Mid-Continent

Lloyd Stearman, airplane designer and until recently associated with the Stearman-Hammond Aircraft Corp. of San Francisco, has joined the personal staff of Thomas Fortune Ryan III, executive vice-president of Mid-Continent Airlines, Inc., to conduct a thorough survey of air mail feeder route possibilities in connection with Mid-Continent.

Mr. Ryan said his company is interested in establishing a network of feeder lines to feed into the main route if such a network is found to be practicable.

Mid-Continent is following closely the development of the new Vega unit-twin feeder liner now under construction by the recently organized Vega Airplane Co., Lockheed Aircraft subsidiary, of which Mac Short is president. If Mid-Continent enters the feeder line business, it is expected that Vegas will be used.

F. W. Castle Joins Sperry

Brooklyn, Sept. 27—F. W. Castle, formerly with Allied Chemical & Dye Corp., has joined the sales division of Sperry Gyroscope Co., according to Robert B. Lea, vice-president of the company. Castle is a graduate of West Point, class of 1930. He was commissioned in the Corps of Engineers, taking flight training at the Army Training Center from which he graduated in 1931. From 1931 to 1934 he was a pilot with the First Pursuit Group at Selfridge Field, resigning to join Allied Chemical & Dye. Castle holds a commission in the New York National Guard as a first lieutenant and pilot. He is the son of Col. B. F. Castle, who headed the Air Service Control Board during the World War and who was the first Air Attache to the American Embassy in Paris.

Dorrell With Vega

Vernon Dorrell, until recently with Mid-Continent Airlines, Inc., joined the Vega Airplane Co. of Los Angeles as sales representative on Oct. 1. Mr. Dorrell was formerly in the sales department at Lockheed. Vega is a Lockheed subsidiary.



Show Pickup Device

Top photo shows one of the new Stinson Reliants demonstrating the air mail pickup device invented by Dr. Lytle S. Adams, vice-president of All American Aviation. Below, Dr. Adams inspects one of the specially constructed planes with F. X. Mara, Stinson sales manager.

Welsh Leaves Aeronca

J. C. Welsh resigned as sales manager of the Aeronautical Corp., Cincinnati, effective October 1. In the nine years he has been with the company he has also served on the board of directors. He will take a month's vacation before announcing future plans.

AC Names Manager

Flint, Mich., Sept. 27—L. Clifford Goad, has been named general manager of AC Spark Plug Co., division of General Motors Corp. here. He has served as general manufacturing manager for four years, and succeeds Fred S. Kimmerling, who has resigned because of ill health.

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New Altimeter Shows Exact Height; Sensitive to Terrain and Structures

United Air Lines and Western Electric Co., on October 9 in New York gave the first public demonstration of an absolute altimeter that registers for the pilot at his exact height at any moment over land, water or any man-made obstruction. Using what is said to be the shortest radio wave ever utilized for aviation (500 megacycles), the five watt transmitter, powered by the plane's generator, transmits a signal toward the ground, which "echoes" or bounces back to the plane where it is caught by a receiving set. The measurement of the elapsed time between transmission and reception is translated into distance from the ground, in feet, and shown as such on a dial.

As United's experimental Boeing equipped with the device flew over the George Washington Bridge on a demonstration trip the new altimeter recorded an immediate difference of several hundred feet, and when the plane swung over the Palisades the absolute altimeter indicator dropped to about 250-ft., while the barometric altimeter alongside remained constant at about 800-ft.

Peter C. Sandretto, superintendent of United's communications laboratory, who was in charge of the demonstration, pointed out to distinguished visitors aboard, the transmitter which protruded from the underside of the right wing and slightly to the rear of the landing gear. About 15-ft. away, in about the corresponding position of the left wing, was the receiving antenna. The computation of distance is made by comparing the difference in time on the receiving antenna between (1) a weak signal direct from the transmitter and (2) the signal which returns from the earth.

The instrument is entirely free of static, having been tested successfully

in heavy storms and above overcast. The 5-watt transmitter is serviceable up to about 4,000-ft., but this range can be increased, it was said. The next step will be to project the signal ahead, as well as below, the ship. About a year will be required to develop the present altimeter so as to cut its weight to considerably less than 50-lb. weight now obtained. Mr. Sandretto said a minimum altitude alarm, which would ring a bell or flash a light when the plane dropped below a certain altitude, would probably be the first practical use of the instrument.

Persons who viewed the experiment in New York were newspaper reporters, aviation and airline officials and C. B. Allen, director of liaison for the CAA. W. A. Patterson, president of United, said "Our engineers and pilots regard the development of this device as one of the most important technical advancements in the history of air transportation. The Bell Telephone Laboratories and Western Electric Co., in cooperation with which our company has worked, are to be highly commended by the aviation industry for this major contribution to the safety of scheduled flying."

Dominion Firm Asks Charter

Ottawa, Sept. 30—The Department of State has received application for a charter from Associated Aircraft, Ltd., with headquarters in Montreal, and capitalized at \$3,750,000. This is the central organization of Canadian manufacturers to which orders by the British government are to be directed. The corporation will be given powers to operate the industry in all its branches. Actual contracts will be placed in London following negotiations now under way.

A A Radio Facsimile Printer Gives Pilots Written Weather Reports

An aircraft radio-teletype facsimile printer, designed to make printed messages from ground stations available to pilots, has been tested by American Airlines in Chicago, and installation made on one of the company's planes, according to Paul Goldsborough, president of Aeronautical Radio, Inc. The printer is manufactured by the Teletype Corp., of Chicago, a subsidiary of the Bell Telephone Co.

One of the main advantages of the new device is the fact that the pilot will at all times have continuous printed weather reports available without the necessity of maintaining earphone watch. In addition, a written record of all communications to the aircraft will be available.

Although original experiments were conducted with a 26-lb. machine, the company is now using a model which weighs less than 10 lbs., complete with tape reels, cables, etc. The printer will operate on approximately a 50-milliwatt signal, and the signals from ground stations to aircraft usually average over 100 milliwatts. Total band width occupied by the transmitter when keyed for facsimile printing operation is 800 cycles.

The light-weight printer, which uses a standard airplane high frequency receiver, requires no additional equipment in the aircraft other

than necessary cable, connections and off-on switches. Being of the facsimile type, the machine cannot print a wrong character because of electrical interference.

"The facsimile signals are printed on standard teletype tape at the rate of 50 words per minute, and are sent through a scanning device at the transmitting end before being sent to the transmitter keying service," the company states. "Legible facsimile reception is obtained up to the point where radiotelephone signals become unintelligible due to noise, static, etc. . . . At the present time we are keying a tone on the Bendix transmitter and will probably continue to do so for ground-plane transmission."

At present, American's only transmitting set-up is at Chicago, but installations are scheduled at Newark and Cincinnati for the near future. The same equipment is suitable for use over the point-to-point ground radio circuits, and when Chicago, Newark and Cincinnati are equipped for printer operation, it is planned to conduct point-to-point experimental communications, using the printer instead of the regular telegraphic code.

BELOW: Exact reproduction of facsimile tape as pilot sees it emerge from receiver. Interference or static may make one letter illegible, but not necessarily its duplicate above or below it.

Close-Up of DC-4 Nose



An unusual shot of the Douglas DC-4 nose, showing the front wheel of the so-called "tri-safety" landing gear. The wheel retracts behind the narrow doors when the plane is in flight. Each wheel, with its tire, is 65-in. high.

LIQUID-COOLED RESEARCH

Lycoming at work on New Series; A. C. Interested

Lycoming division of Aviation Corp. is working on liquid-cooled aircraft engines with a view to military markets. The work is still in an experimental stage, but has received considerable attention from the Army Air Corps.

To date the most extensive development of liquid-cooled engines in this country has been accomplished by the Allison division of General Motors at Indianapolis. After some nine years of research, the Air Corps purchased 40 of the engines. The Bell fighters are to be equipped with Allison.

New Piper Cub Coupe for 1939 Introduced

Piper Aircraft Corp. has introduced its 1939 Cub coupe offering larger cabin interior, side by side seating, improved hydraulic brakes, a full swivel tail wheel with shock cord absorption unit, and other refinements. The price is \$1,995 F.A.F. It is equipped with a 50-hp. Continental motor.

Other standard equipment includes streamlined landing gear, Goodrich air wheels, wheel pants, 15-gal. gas tank, a conveniently located elevator tab control, navigation lights and battery.

Length overall is 22-ft., 6-in.; height is 6-ft., 10-in.; wing span is 36-ft., 2-in., and total wing area is 183 sq. ft. Weight empty is 710-lbs., and useful load is 490-lbs. Gross weight is 1200-lbs. The baggage compartment is 20x40x14, with a capacity of 50-lbs. Takeoff run is 300-ft., and climb in the first minute is 500-ft. Top speed is 93-mph. and cruising speed is 83-mph.

Cruising range is 340 miles. Landing speed is 35-mph., with a run of about 200-ft. Service ceiling is 12,000-ft., and gliding ratio is 10 to 1. Gasoline consumption is 3.6-gal. an hour. Oil consumption is 1/2-pint an hour and oil capacity is 4 quarts.

DC-4 Excels Predicted Performance in Tests

Santa Monica, Cal., Sept. 27—After 46 test flights by the new 42 passenger Douglas DC-4, Arthur E. Raymond, vice-president and chief engineer of Douglas Aircraft Co., Inc., says that the craft has exceeded the predicted performance of its engineers and designers.

With the horsepower available still to be increased, these results were reported:

1. Guaranteed maximum speed of 240-mph. was exceeded "by a comfortable margin." A series of flights over a measured speed course, including one hour at full throttle at 10,000-ft., and one hour at 1,000-ft., gave the data for this test.

2. The rate of climb was over 1,000-ft. a minute at 8,000-ft., using 4 engines, and 25,000-ft. was attained with full load.

3. On three engines 20,000-ft. was attained, with a rate of climb of 580-ft. a minute at 8,000-ft.

4. On two engines on one side the ship went through sawtooth climbs, attaining 11,000-ft. instead of the predicted 9,400-ft., with a rate of climb of almost 100-ft. a minute at 9,000-ft. instead of the guaranteed 10-ft.

5. With 61,200-lb. load, takeoff required only 1,050-ft., and this achievement is likely to be bettered later. Pilots for the various airlines who have flown the ship have stated repeatedly that it takes off shorter than much smaller craft.

Tests have included stalls, banks, climbs, load and control experiments, altitude, fuel consumption, takeoffs and landings with center of gravity radically altered. All fuel dumping tests have been exceedingly successful, it was said. It will be several weeks before the CAA will grant its certificates. Then, each of the five contracting airlines will have the giant for a specified period.

TEST TRANSMISSION TO AMERICAN AIRLINES AIRCRAFT
TEST TRANSMISSION TO AMERICAN AIRLINES AIRCRAFT

Hamilton Perfects Vibration Analyzer, Revolutionizing Propeller Construction

Development of a new vibration study technique that has brought about "revolutionary improvement in the design not only of aircraft propellers but also of engines and other parts," was announced October 6 by Hamilton Standard Propellers Division of United Aircraft Corp., East Hartford, Conn.

Once vibration stresses are known, it is not difficult to predict propeller behavior in operation, the manufacturers say. Failures near the blade tip will be reduced to the vanishing point, it is said. The company has never had a breakage at the hub on any of its 20,000 controllable pitch products. The perplexing trend of constantly increasing propeller weight (with size) on giant planes is solved, as well, since the designers now can cut weight without sacrificing strength. For example, the new 14-ft. Hydromatic propellers now being used on the Douglas DC-4 and the Boeing 314 are the largest Hamilton has ever built, yet they weigh less per horsepower than any controllable pitch propeller previously built, it is announced. If designed under previous methods, each would have been at least 200-lbs. heavier.

Of even more importance to designers is the ability to measure the magnitude and location of unpredictable stresses, repeated and varying, imposed by some factor of the airplane-engine-propeller combination, as contrasted with stresses from mere rotation. In addition it is possible to learn exactly at what times and under what operating conditions these irregular stresses occur, thus giving a clue to their source.

The recording device employs an oscillograph and a tiny vibrating mirror which reflects a beam of light upon a screen. A strip of light-sensitive paper is passed across the screen at any desired speed, and the beam traces a wavy line on the paper with the height of the waves directly proportional to the stress in the propeller. A permanent record is thus available. This recording equipment may be placed in any plane, and is being used on both the Boeing 314 and Douglass DC-4.

"Perfection of the new method of stress determination presents the solution to serious problems that have been a thorn in the side of propeller designers for more than 20 years," the company announces.

Bellanca Employment Up

Wilmington, Del., Sept. 27—Employment reached a new all-time high at Bellanca Aircraft Corp. in New-castle recently when the firm's payroll was swelled to 550 men. This peak, the result of new orders, compares with an average employment roll of 120 to 150.

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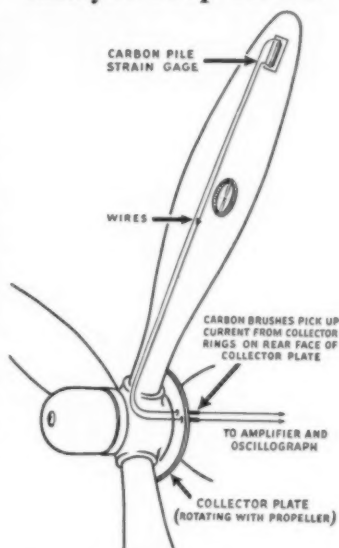
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Analyze Prop Strains



Basing propeller-stress experiments on the phenomenon that certain materials increase and decrease their electrical resistance in direct proportion to stress imposed upon them, Hamilton Standard Propellers Division employs a carbon-pile strip about two inches in length, cemented longitudinally to the blade but insulated from it electrically. Fine wires from the strip are cemented along the face of the blade and led off at the hub to the circular plate shown behind the propeller. This plate rotates with the propeller and the current is picked up from collector rings on its rear face by means of brushes and carried by wires to the recording device. It is possible to record simultaneously the stresses at 12 points on the propeller.

Air Mail Poundage Soaring in Alaska

Fairbanks, Alaska, Sept. 13—Over a ton of mail, or more than 84,000 letters, was handled over the Fairbanks-Juneau route of Pacific Alaska Airways in August, local postal authorities have announced here.

"Especially pleasing," says the *Fairbanks News-Miner* editorially, "is the showing today over the new route in the face of the fact that the Post Office Department in Washington had estimated the service would justify itself if 35-lbs. of such mail were forthcoming each week. Already the weekly poundage exceeds 200, or more than six-fold the desired total."

It was announced that revenues from air mail postage over this one route during August totaled more than \$5,000, exclusive of registered mail fees. Some observers believe that within a year the revenues should make the service self-sustaining, especially in view of the 1939 hops between Juneau and Seattle, for which test flights are now being made. At that time, air mail stamps will entitle letters to fly throughout Alaska and the U. S.

Netherlands Order 12 Lockheed Planes

Burbank, Cal., Sept. 30—An order by the colonial department of the Netherlands East Indies for 12 Lockheed 12s, costing about \$690,000, including spare parts and special equipment, was announced by Lockheed Aircraft Corp. today. Addition of this order brings the Lockheed backlog to approximately \$21,059,000. The first plane is expected to be delivered late in January, with one delivery each week thereafter.

Each plane will be powered with two Pratt & Whitney Wasp Jr. SB engines of 450-hp. each. It is said top speed will be about 220-mph. Each craft will carry six passengers and two pilots.

(On Sept. 28 the company announced an order for an Electra from the Yugoslavian airline Societe de Navigation Aerienne Yugoslave, and an order from Continental Oil Co., Ponca City, Okla., for a model 12. Total value of both is \$108,000. The Yugoslavian order is the fourth in two years for the line, which operates between Belgrade and Vienna. Three ships, including the one just ordered, are scheduled for delivery next February.)

(On Oct. 4 the firm announced completion of the first plane of a \$570,913 War Department order for 13 modified 12s and spare parts and equipment. Six passengers and two pilots are provided for. The Air Corps will use the planes for high speed transportation of personnel and for training pilots in operation of multi-engine equipment. The commercial version of this type ship has a top speed of 230-mph.)

On Oct. 7 repeat orders for model 14s were announced from Santa Maria Airlines, Santa Maria, Cal., and Maj. Max Fleischmann, Santa Barbara sportsman. The two planes, including engines and extra equipment, will cost about \$193,000. The airlines firm has been operating at 12 since 1936. Its new ship will be delivered about Dec. 15. Maj. Fleischmann has used an Electra since 1935, employing Capt. Harry Ashe, noted flyer and author, as his pilot.

NLRB Posts Election

For Vultee Workers

The National Labor Relations Board announced Oct. 7 that an election will be held within 20 days among the wood pattern makers employed by Vultee Aircraft Division, Aviation Manufacturing Corp., Downey, Cal., to determine whether they wish to be represented by the Pattern Makers Association of Los Angeles and vicinity (AFL), by United Automobile Workers of America, local 361 (CIO), or by neither.

"Since undisputed evidence disclosed that the UAW represented, on Apr. 8, 1938, 329 of the 579 production employees, the board stated that it would certify that union as the sole bargaining agency for all workers, should the pattern makers vote to be represented by it. Otherwise, the board will certify the pattern makers as a separate bargaining agency," the NLRB announced.

Air Corps Bids Nov. 15

Dayton, Ohio, Sept. 29—The Army Air Corps has postponed until Nov. 15 the opening of bids for single engine one-place pursuit planes in lots of one to 500. North American Aviation was the only bidder recently on Air Corps single engine observation planes. Price of the bid was not disclosed. Although prices were asked on lots of one to 400, it is believed that only 81 will be purchased.

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1937 Standard Waco almost new. Standard equipment with Curtiss Reed Prop. A wonderful plane for charter trips or passenger business. Economical operation.

Kinner Sportster—125 H. P. B-5 motor, 75 hrs. since overhaul. Full airwheels, brakes, compass and air speed. Like new.

1937 Beechcrafts—285 Jacobs motors, 2-way radio, bank & turn, rate of climb, landing lights, flares, many other extras. One corrosion proofed extra door, on pontoons now. Both in perfect condition.

See or write us before buying any plane. Our prices greatly reduced to make room for new models. Accurate information furnished on all planes.

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Three nearly new airplanes in top-notch condition. Offered at bargain prices.

WACO 1936 CUSTOM. 285 Wright. Beautifully finished in gray with red trim. Hamilton Standard controllable pitch prop; 95 gal. gas capacity; complete night and blind flying equipment. RCA compass receiver. Total time only 203 hrs.; top overhauled at 193 hrs.

WACO 1937 CUSTOM. 285 Jacobs. Westinghouse radio receiver. Night and blind flying equipment. This ship has large gas tanks for wide cruising range. Only 225 hrs. total time.

HOWARD DGA-8. 320 Wright. Just came in.

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Cessna Sales Are \$93,346 to July 5

A complete financial statement for the period Jan. 1 to July 5, 1938, has been released by Cessna Aircraft Co., Wichita, Kan., showing a net profit of \$2,747.94, total current assets of \$103,907.21, and total assets of \$328,702.50. Net sales were \$93,346.62.

Balance sheet figures as of July 5 follow:

Cash on hand and in banks, \$12,276.01; accounts receivable, \$12,363.04; notes receivable, secured by mortgages on planes, \$7,875.94; raw materials, parts and work in process, \$68,213.31; finished airplanes, none; used airplanes, \$1,750; accrued and deferred items, \$1,428.91. Fixed assets include the following items: land, \$13,287.47; buildings, \$110,138.71; factory equipment, \$25,362.49; heating plant, \$25,093.16; sprinkler system, \$20,546.81; water tower, \$7,235; tools and dies, \$5,806.71; office equipment, \$4,334.43; trucks and autos, \$1,370.70. Reserves for depreciation, \$67,463.25. Net value of fixed assets, \$145,712.23.

Other assets: stocks of other corporations, \$1,120; production rights and designs, \$91,300; less reserve for amortization, \$13,336.94.

Total current liabilities of \$14,671.52 included accounts payable, \$3,527.02; mortgage payable (current year maturity), \$8,000; accrued expense, \$487.40; accrued taxes, \$1,396.19; customers deposits on orders, \$1,015; stockholders and employees deposits, \$245.90. Mortgage payable, subsequent years maturity, \$28,000.

Capital stock outstanding, 250,280 shares, common stock, par value, \$1, \$250,280; surplus and undivided profits, \$35,750.98. Total net worth is \$286,030.98.

In the statement of operations for the period are the following: Net sales, \$93,346.62; gross profit on sales, \$20,917.99. Operating expenses included advertising and sales, \$5,818.36; administrative, office and engineering salaries, and expense, \$8,169.80; taxes, \$1,585.49; insurance, \$424.27. Net profit on operations, \$4,920.07.

Experiments have been conducted on twin engine models, the statement reports.

6 Capronis to Salvador

The Republic of Salvador has acquired six Caproni (Italian) fighting planes according to *New York Times* dispatches. Aviation Captain Julio F. Sosa and Belisario Salazar, a chief mechanic in the Salvadorean Army, have returned from a study period in Italy. They were accompanied by Capt. A. Cipolia of the Italian army.

Martin Addition Complete

Baltimore, Oct. 10—The Glenn L. Martin Co. announces completion of a new building at its Middle River, Md., plant to be used exclusively for its drop hammer department. The structure, offering 10,000-sq. ft. of floor space, with its new equipment represents \$75,000 investment and quadruples drop hammer capacity. "The increased equipment enables the company to take additional advantage of structural superiorities and manufacturing economies demonstrated by the program of research which, for several years past, has resulted in a constantly increasing substitution of stampings for hand-forming and for built-up assemblies formerly fabricated by riveting and welding," it was said. Early September employment was an all-time high.

7 Coast Guard Craft

The U. S. Coast Guard has awarded Hall Aluminum Co., Bristol, Pa., a contract for seven flying boats to cost \$862,499. The planes, biplanes with two motors, will be used for rescue work on both coasts, the Treasury Department announced Oct. 7.

111 Cubs in August

Lock Haven, Pa., Oct. 5—Piper Aircraft Corp. production was 111 during August, a new high, according to T. V. Weld, vice-president, not only for Piper but for all companies in this country and probably in the world, it was said. The highest previous record for one month was set by Piper in September, 1937, with 96 planes.

AVIATION CORP. GAINS

Nine Months Net Income Is \$402,062 As Compared With \$82,681 Loss

Aviation Corp. and subsidiaries announce a consolidated net profit of \$402,062 after depreciation, experimental expense and estimated normal federal income taxes for the nine months ended Aug. 31. This was equivalent to 14c each on the 2,777,750 shares outstanding. In the corresponding period of 1937 a net loss of \$82,681 was reported.

Net sales increased from \$3,321,000 for the period last year to \$5,215,145 this year. Cost of sales was \$4,337,541; depreciation, \$106,227; selling, administrative, engineering and experimental expense was \$769,563; profit, \$1,814; other income, \$420,872; total income, \$422,686; federal income taxes, \$20,624.

Forms British Firm

Cleveland, Sept. 26—Allan S. Austin has been appointed by the Austin Co. here to direct a subsidiary construction firm in Great Britain to be identified as Austin Engineers Builders, Ltd. Clayton Foster will direct the architectural division.

Higher Manufacturing Output Seen for 1939; Air Traffic May Soar, Says Research Report

Even greater manufacturing activity and possibility of a sharp increase in air transport traffic are prophesied for American aviation in 1939 by the research department of Fenner & Beane, in their industries service issue for Sept. 30.

Writing of manufacturing, the report states:

"Looking forward to 1939, higher levels of output and profits than in 1938 seem likely to be witnessed, but the degree of improvement will be small as compared with both the sharp improvement in this industry during recent years and the rapid earnings gains likely in other capital goods industries during 1939 in the event of a broad business recovery. For example, the year-to-year increase in production, estimated at 25% for the second half of 1938, against 47% in the first half, is likely to narrow still further next year.

"Unfilled orders are still large, supported by foreign demand, but many concerns have cut into their backlogs and the industry may enter the new year with somewhat less than the approximately \$150 million of business on hand at the end of 1937. The importance of such a decline in the backlog would be emphasized by the steady enlargement of productive capacity.

"Resultant doubt as to the future rate of expansion in output raises the question of the industry's ability to absorb as readily as heretofore any additional increases in wages or other costs. A current threat of higher wages exists in the Public Contracts Board's efforts to impose on government contract holders a 60c minimum hourly wage."

The domestic air transport picture is described as follows:

"Air traffic for 1938 as a whole may total slightly in excess of last year's volume, but only because of the better-than-average performance of the

Breeze Asks \$250,000 Damages in Law Suit

New York, Oct. 1—Breeze Corps., Inc., is seeking damages of \$250,000 in the New York County Supreme Court against a group of defendants including John J. Bergen & Co., Ltd., John J. Bergen, Eugene L. Garey, New York attorneys, and former associates of Mr. Bergen, Clarence K. Pistell and Thomas B. Wright, now doing business as Pistell, Wright & Co., Ltd., 40 Wall St. The action is a cross-suit and counter claim in a suit begun by Mr. Garey against Breeze for \$22,665.99 for professional services rendered the Breeze Company.

Answer of Breeze to the original Garey suit disclaims liability on the ground that services were rendered by Mr. Garey in furtherance of a conspiracy on the part of Bergen, Pistell, Garey and Wright, together with certain other persons, having as its objectives the illegal unseating of the present management and to obtain control of Breeze Corps., Inc., according to Breeze attorneys, Palmer & Ryan.

Fairchild Sold Abroad

During recent months, Fairchild Aircraft Corp. has completed deals in six foreign countries and Alaska for a total of 14 new Warner and Ranger-powered 24's, as follows: Australia, Wallace Shrimpton, Melbourne, five Fairchild 24's; Slam, Aerial Transport Company of Slam, three Warner-powered standard models to carry air mail and express to remote parts of the kingdom; France, Antoine Gazda, director of Cerikan in Zurich, Switzerland, a Ranger 24; South Africa, a deluxe Warner 24 to the South African Flying Service of Johannesburg; Puerto Rico, a Warner 24 to the forestry division of the Department of Agriculture; Japan, Ernest Robinson, a Ranger 24; Alaska, two Warner 24's to Hans Mirow of Nome. Frank Pollack of Fairbanks, to carry government mail, freight and express and general charter service.

smaller lines. Larger losses than in 1937 appear inevitable for almost all major lines this year. After the extended period of deficit operation, many lines appear in need of new financing to bolster working capital and most are in no position to undertake equipment purchases without assistance.

"To record sharp expansion and make highly favorable comparisons with this year's disappointing volume, air traffic next year would seem to require only a moderate stimulus in the form of general business revival. Although definite assertions would be premature, a recovery of considerable degree and duration seems a better-than-even possibility.

"The month old Civil Aeronautics Authority, whose creation imparts a needed element of stability to the industry, is expected to issue certificates of 'convenience and necessity' and put air mail compensation on a more equitable (profitable) basis within the coming year; initial progress, confined mainly to the adoption of safety measures, has been encouraging."

Bearing Lubrication Study

A 42-page booklet on ball and roller bearing lubrication, printed on book paper and well illustrated with engineering sections and half tones, has been prepared for free distribution by the Texas Co., 135 E. 42d St., New York City. The work has a minimum of advertising material and contains information designed to aid those concerned with bearing maintenance.

UNITED STATES STEEL CORP. has published a handbook entitled "The Fabrication of USS Stainless Steel." Containing many illustrations, the handbook discusses the welding, riveting, soldering and design of joints.

\$5,379,621 August Exports Top Year Ago; Brazil Leads Buyers

Exports of aeronautical products from the United States during August totaled \$5,379,621 as compared with \$5,158,818 in August of 1937, the Bureau of Foreign and Domestic Commerce announced Sept. 30. Brazil headed the list of foreign customers. Total exports for the first eight months were \$48,693,213, an increase of 106% over the same period of 1937 and 23% above the total for the entire year of 1937.

Valuation of 53 aircraft exported in August was \$3,358,309; 115 engines were valued at \$578,221; parachutes and parts totaled \$20,740; parts and accessories were computed at \$1,422,351.

Leading importers of American aeronautical products during the month were:

Brazil	\$575,469
Rumania	429,060
Russia	330,824
Canada	299,628
United Kingdom	274,777
Netherlands	141,967
Estonia	130,225
Colombia	99,585
Sweden	91,193
Netherlands West Indies	81,122
Mexico	78,436
Germany	70,521
Esthonia	59,882
Panama Canal Zone	52,269
Denmark	20,106
Costa Rica	15,605

Other countries which purchased more than \$10,000 in equipment during the month were France, and Poland and Danzig.

Grumman & Brewster to Build Navy Amphibs

Grumman Aircraft Engineering Corp. on Oct. 7 announced receipt of a contract from the Navy for 20 amphibians, model J3F3, totaling \$754,000. Unfilled orders of the corporation now total more than \$4,400,000 as of Oct. 1, compared with \$3,751,000 on July 1. The J3F3 is similar to the J3F2, of which Grumman is building 30 for the Navy.

Simultaneously, Brewster Aircraft Parts Division of Brewster Aeronautical Corp. announced "a domestic order" for airplane wings and tail surfaces totaling \$175,000, believed to be from Grumman for the Navy planes. Brewster backlog now is \$2,187,643, as compared with \$2,165,405 on June 30 and \$1,431,194 in October, 1937.

D. H. Starts Addition

Toronto, Oct. 4—De Havilland Aircraft of Canada today began construction of a \$100,000 addition to its plant here. Ten of the 200 Tiger Moth trainers ordered by the parent company in England have been completed, eight more will be shipped next week, and within a month one plane will be produced each day, officials said.

Files Against United Aircraft

East Hartford, Conn., Oct. 8—A certificate of attachment of real estate in the amount of \$100,000 has been filed here against United Aircraft Corp. by Mrs. Adela B. Lewis, Ansonia, Conn. She is the widow of the late Richard G. Lewis, who was killed in United Air Lines' crash near Cleveland May 24. Mrs. Lewis alleges failure of equipment built by the defendant.

Old Warrants Voided

Outstanding stock purchase warrants of United Aircraft & Transport Corp., predecessor company to United Aircraft Corp., United Air Lines Transport Corp. and Boeing Airplane Co., will be void after Nov. 1, 1938, it has been announced.

Certificates & Approvals

The Civil Aeronautics Authority has released the following list of recent type certificates, approved type certificates and approvals:

New Type Certificates

Taylorcraft BF, 2 place closed land monoplane, powered by a Franklin 440-150-50. (No. 699, Sept. 19).
Taylorcraft BL, 2-place closed land monoplane, powered by a Lycoming 6-145. (No. 700, Sept. 22).

Propellers

Pittsburgh 652-ccl.5, steel, 11-ft., 6-1/2, controllable pitch, 284-hp. per blade; 2,450-rpm. (No. 683, Sept. 9).
Pittsburgh 512-Ccl.5, steel, 10-ft., 6-in. controllable pitch, 300-hp. per blade; 2,550-rpm. (No. 684, Sept. 9).
Curtiss 89303, aluminum alloy, 12-ft., 6-in. controllable pitch, 300-hp. per blade; 1,581-rpm. (No. 635, Sept. 15).

Special Approvals

Sperry Automatic Pilot (Sept. 22, 1938).

Contracts

The Department of Labor announced the following aviation contracts amounting to \$397,243.25, were signed during the week ended Sept. 29 by various government agencies:

Standard Oil Co. of New Jersey, New York City, engine fuel, Army Air Corps, \$13,440.
Aetna Paper Co., Dayton, O., blueprint paper, Army Air Corps, \$19,446.25.

North American Aviation, Inc., Inglewood, Cal., airplanes, Navy, \$393,132.
United Aircraft Corp., Pratt & Whitney Aircraft Division, East Hartford, Conn., assembly bearings, aircraft, \$48,650.

United Aircraft Corp., Hamilton Standard Propellers Division, E. Hartford, Conn., governor propeller units, Navy, \$12,075.

Incorporations

Maryland—Duramold Aircraft Corporation, 1508 National Bank Building, Baltimore. Capital stock, 200,000 shares, \$1 par value. Incorporators: Harold C. Vaughan, George V. Reilly, David H. Jackson.

California—Phillips Aviation Co., Los Angeles. Directors, James A. Phillips, Jr., Pasadena; George A. Byars, Van Nuys; Kent Hamilton, San Fernando; L. M. Phillips, Los Angeles; Florence Reilly, Pasadena. Capital stock, \$100,000. No stock subscription.

California—Associated Air Services, Inc., lessee and operator of Palo Alto Airport, has filed incorporation papers. Directors named are: Edward E. Hardy, Leon A. Carley, Edith Crouse, Daniel K. Hickey, all of Palo Alto.

SEC Grants Delisting

of Fairchild and Kinner

The Securities & Exchange Commission stated Oct. 6 that it has granted the application of the Chicago Board of Trade to delist the \$1 par value common stock of Fairchild Engine and Airplane Corp. effective at the close of trading on Oct. 10, and the application of the Los Angeles Stock Exchange to delist \$1 par value common stock of Kinner Airplane and Motor Corp., Ltd., effective at the close of trading Oct. 10.

The Chicago action was based on the fact that issuer had never authorized commencement of trading. The Los Angeles Exchange declared the Kinner Co., which has filed a petition for reorganization under section 77B of the bankruptcy act, has been denied authority by the court to employ an independent auditor who would prepare an annual report for the year ending Dec. 31, 1937, as required by the Securities Exchange Act of 1934.

ALLEGHENY LUDLUM STEEL CORP., Brackenridge, Pa., has published a booklet entitled "Twins Engine for Progress," which traces the growth of the Allegheny and Ludlum Companies, outlines developments leading up to the recent merger, and describes present facilities, assets and products.

Stock Holdings

The Securities and Exchange Commission's official summary for Sept. 1-10 contains the following record of transactions and holdings of officers, directors and principal stockholders of aviation corporations which have equity securities registered. Transactions were made in August and holdings are as of the end of that month, unless otherwise noted:

Air Associates, Inc.—Gilbert Colgate, director, increased common 100 to 15,420 and holds 498 convertible preferred.

Aviation & Transportation Corp. (common)—Victor Emanuel, director, increased 564 to 18,400 and holds 13,000 through Corporation B and 5,000 through Corporation C.

Chicago & Southern Air Lines, Inc.—D. D. Walker, officer and director, holds 23,118 common vtc. and increased convertible preferred 150 to 2,280.

Consolidated Aircraft Corp.—C. A. Van Dusen, officer and director, increased common 100 to 4,300 and holds 148 \$3 convertible preferred.

Curtiss Wright Corp. (Class A)—Edward R. Timker, director, acquired 100 in September, 1937, holding that amount; through family corporation decreased 100 to 2,000 in July, 1938.

Ex-Cell-O Corp. (common)—Leslie M. Johnson, director, increased 911 to 2,511.

Fairchild Engine & Airplane Corp. (common)—Walter F. Burke, beneficial owner, decreased 1,000 to 56,899.

Grumman Aircraft Engineering Corp. (common)—L. R. Grumman, officer and director, decreased 15,000 to 134,160. L. A. Swirbul, officer and director, decreased 15,000 to 56,500.

Lockheed Aircraft Corp.—Lawrence C. Ames, director, decreased 600 to 7,600. Randolph C. Walker, director, holds 300 directly; through Mrs. J. S. Walker, wife, decreased 1,000 to 17,400.

National Aviation Corp. (common)—Aviation Securities Corp., beneficial owner, disposed of 13 by exchange, holding 61,655.

North American Aviation, Inc. (common)—Ernest R. Breech, director, increased 500 to 600.

Pan American Airways Corp. (common)—H. Preston Morris, officer, decreased 100 to 782. J. S. Woodbridge, officer, decreased 100 to 650.

Below is a tabulation of equity holdings filed by persons becoming officers, directors, or principal stockholders of issuers having any securities registered:

Kinner Airplane & Motor (common)
W. A. Abegg, dir., 9,000 July '38
Robert Barlow, dir., 125 July '38
Eugene A. Kegley, dir., 4,000 Aug. '38

Aero Patents

Sept. 27, 1938

2,131,217: Automatic Variable Pitch Propeller. Issued to Vincent Boyd Brumwell, San Diego, Cal.

2,131,155: Aeroplane Mounting. Issued to Eldon L. Dale, Long Beach, Cal., assignor, by direct and mesne assignments, to Dose Radioplane Co., a corporation of California.

2,131,155: Aircraft. Issued to Charles W. Waller, Chicago, Ill.

2,131,595: Twin Cylinder Engine. Issued to Charles Monti, Bay Shore, N. Y.

2,131,472: Motor. Issued to Henri Coanda, Clichy, France.

2,131,348: Rotating Wing Aircraft. Issued to Raoul Hafner, Vienna, Austria.

2,131,528: Flying Machine Adapted to Land on Water. Issued to Robert Soyer, Viroflay, France.

2,131,610: Airplane Refueling System. Issued to Kurt Arndt.

2,131,471: Illuminator for Indicator Dials. Issued to Leslie F. Carter, Leonia, N. J., assignor to Sperry Gyroscope Co., Inc., Brooklyn, N. Y., a corporation of New York.

Movies on Aluminum Uses

Two one-reel silent motion picture films have been completed by the Bureau of Mines, of the Department of the Interior, one depicting the story of the production of aluminum and the other showing aluminum fabrication processes. Copies of the films, in 16-mm. and 35-mm. size, are available for exhibition at institutions, civic organizations and firms. No charge is made, except for shipping expense. Applications should be made to the Bureau of Mines experiment Station, 4800 Forbes St., Pittsburgh, Pa.

AVIATION STOCK TRENDS

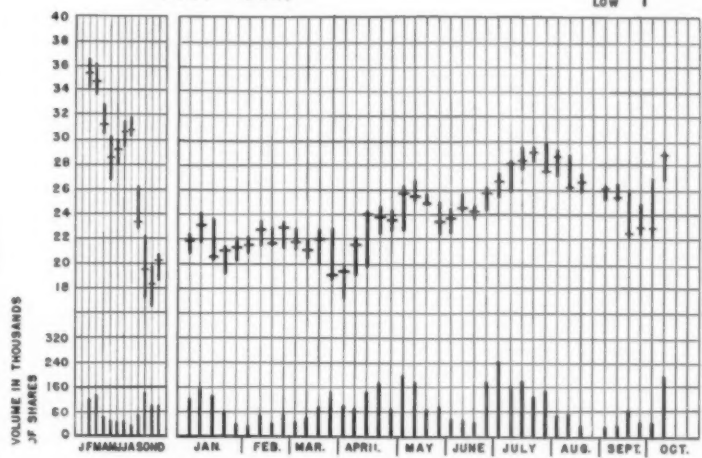
WEEKLY AVIATION AVERAGES
(1937-1938)

Chart Figures Furnished by Wyckoff Associates, Inc.,
Comments by Philip P. Friedlander

Have the Aviation Stocks about finished their immediate bullish swing? Will there be just a temporary adjustment before the next advance? How are aviation securities behaving market-wise in comparison with the general market?

Unfortunately no one can give a definite answer to the above questions. There is only one way to judge, and that is to study just where supply of stock should come in, and if there is such a supply of stock, how much time would be needed to get prices swinging upward again. Aviation stocks have really had an amazing upward move. True, they retreated much faster than the general market, and the rapid move back is merely a natural pendulum reaction. Nevertheless, at this moment, with aviation stocks in the 30 area, this group has recovered its earlier July losses.

The Dow Jones Industrial Averages, recovering some 22 points, move-

ing back from approximately 128 to 150, did not regain percentage wise the same ground as the aviations. In discussing the general market situation, naturally one must bear in mind that the Dow Jones Industrial Group, composing, as it does, a great many divergent groups, advances generally when the leading American Industrial shares seek newer and higher levels. So from that point of view the action of the aviations has been all that a bullish trader would desire.

Opinion is that at the moment aviation stocks have reached a barrier. Some sort of adjustment will be necessary before the journey upward will continue. A consolidating move may be all that is needed, but even this will require a swing of several points backward and forward to create a base for further progress.

Traders who missed the last move up of the Aviation stocks should now await better buying opportunity.

NEW YORK STOCK EXCHANGE

	Week Ending Oct. 1				Week Ending Oct. 8			
	High	Low	Net Change	Sales	High	Low	Net Change	Sales
Aviation Corp.	43 3/8	31 1/4	+ 1 1/2	8,900	41 1/2	4	+ 1 1/2	10,700
Bendix Aviation	22 1/4	17 3/4	+ 3	45,900	22 3/4	21 3/8	— 1/8	32,700
Boeing Airplane	25	19 3/4	+ 4	28,100	27 1/8	24 1/2	+ 1 1/2	36,900
Consolidated Aircraft ..	14 1/2	10 1/2	+ 2 3/4	8,700	16	14	+ 1 1/2	13,200
Curtiss-Wright	5 1/4	4	+ 3/4	44,100	5 1/2	5 1/8	+ 1/4	44,000
Curtiss-Wright A	22 3/4	18 1/4	+ 3 1/2	22,400	24 3/8	22 1/8	+ 1 1/2	31,800
Douglas Aircraft	48 1/2	39 1/4	+ 7 1/2	25,700	51 1/4	47 1/2	+ 2 3/4	26,700
Ex-Cell-O	15 3/4	12	+ 2 1/4	5,500	16 3/4	15 3/4	+ 1/2	8,300
Glenn L. Martin	23	18 1/8	+ 4 3/4	21,400	25 1/4	22 1/8	+ 2	31,600
Natl. Aviation Corp. ..	8 1/8	6 3/4	+ 1 1/8	2,100	9 1/4	8 1/4	+ 5/8	3,900
N. American Aviation ..	9 1/2	7 1/2	+ 1 1/4	24,000	10 1/4	9 1/4	+ 3/4	36,600
Sperry Corp.	26 3/4	22 1/4	+ 3 1/4	43,000	29 1/4	26 3/4	+ 2 3/8	74,500
Thompson Products	18	14 3/4	+ 1 1/2	2,800	19 3/4	18	+ 1 3/4	3,500
TWA	7 5/8	5 5/8	+ 1 1/8	8,700	8 1/8	7 1/8	+ 1/2	14,400
United Aircraft	27 3/4	23 1/8	+ 3 1/8	31,300	30 3/4	27 3/4	+ 2 3/8	83,800
United Air Lines	9 1/4	7 1/4	+ 1 1/2	14,200	11 1/8	9 1/4	+ 5/8	55,500
Wright Aeronautical	89 1/2	78 1/2	+ 9 1/4	410	103 1/4	88 1/2	+ 15	1,000

NEW YORK CURB EXCHANGE

	Week Ending Oct. 1				Week Ending Oct. 8			
	High	Low	Net Change	Sales	High	Low	Net Change	Sales
Aero Supply A	3 1/8	2 1/2	+ 1/2	600	3 1/2	3 1/4	+ 1/4	500
Aero Supply B	3 1/8	2 1/2	+ 1/2	600	3 1/2	3 1/4	+ 1/4	500
Air Associates	15	10 1/2	+ 4	2,600	15 3/8	14 1/4	+ 1 1/2	4,300
American Airlines ...	17 1/2	11 1/2	+ 1 1/2	2,300	2	1 1/2	—	4,600
Beech Aircraft	25	11 1/2	+ 1 1/2	2,700	23 1/2	2	— 3/4	2,100
Bell Aircraft	12 1/2	12 1/4	+ 1/4	200	13 1/2	11 3/4	+ 1 3/4	1,000
Bellanca Aircraft	5 1/2	4 1/4	+ 1/2	2,700	5 1/2	5 1/2	—	1,100
Breeze Corps.	3 3/4	3	+ 1/4	1,000	4 1/2	3 1/2	+ 1/2	800
Brewster Aero	5 3/8	4 5/8	+ 7/8	2,800	6 1/8	5 3/8	+ 5/8	4,700
Fairchild Aviation ...	5	4	+ 1/2	1,300	5 1/2	4 3/4	+ 1/2	2,200
Grumman Air. Eng. ...	12 3/4	10 1/2	+ 1 1/2	3,400	13 3/8	12 1/2	+ 3/4	2,300
Irving Air Chute	12	11 1/2	—	400	13 1/4	11 1/2	+ 1 1/2	700
Lockheed Aircraft	14 1/2	11 1/2	+ 2 3/4	18,300	16	14 3/4	+ 1 1/4	23,400
Pan American Airways ..	14 1/2	11 3/4	+ 2 3/4	2,700	15 3/8	14 1/2	+ 1 1/2	2,700
Penn. Central Airlines ..	5 1/2	5 1/2	+ 1/2	200	7 1/4	7 1/4	—	100
Seversky Aircraft	2 1/2	2	+ 1/2	3,100	2 3/4	2 1/2	+ 1/4	5,400
United Aircraft War ...	9 1/4	4 5/8	+ 3 3/4	10,900	13	9 1/4	+ 3 1/2	32,800
Waco Aircraft	2 1/2	2	—	400	2 1/2	2 1/2	+ 1/2	100
Western Air Express ...	2 3/4	1 1/2	+ 3/4	1,300	3 3/8	2 3/4	+ 1 1/2	2,000

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